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Railway Age

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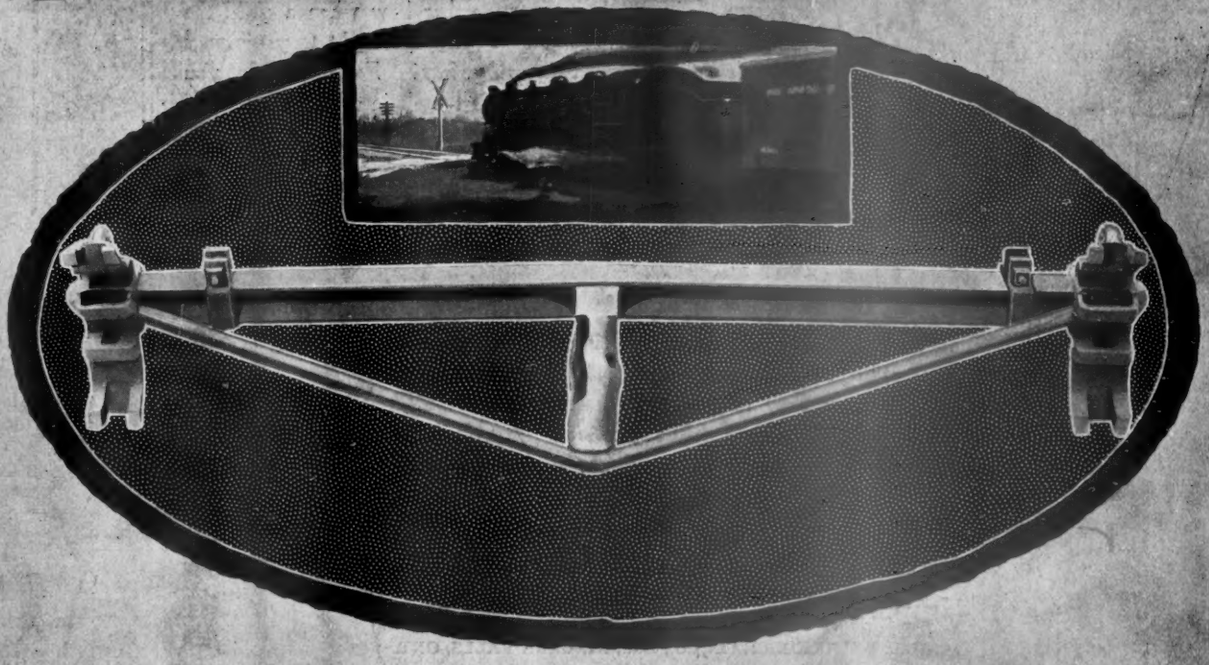

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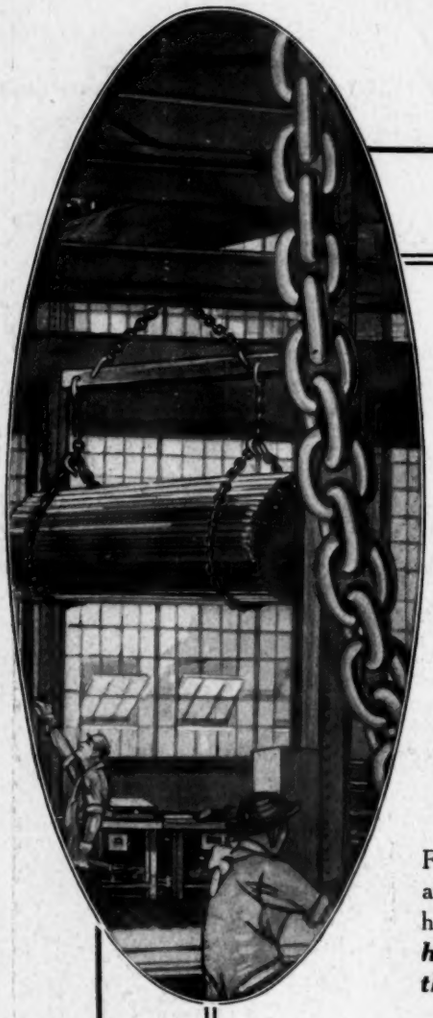

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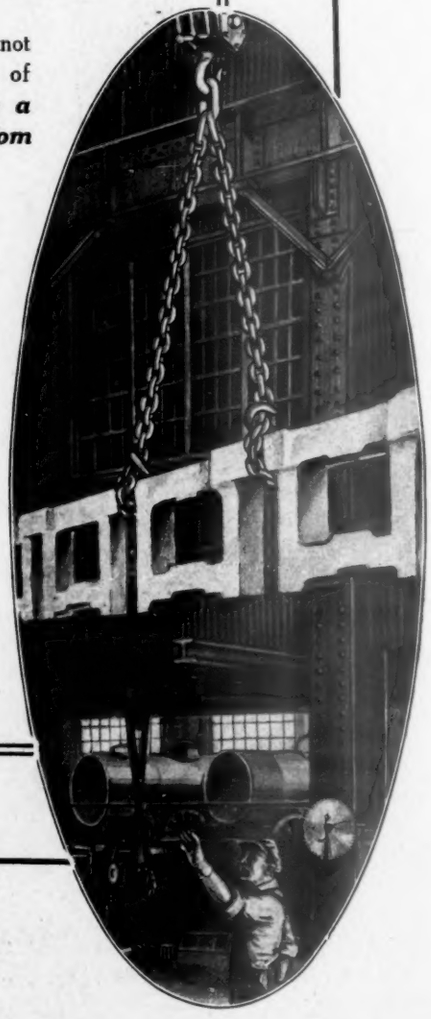

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EDITORIAL
Railway Age

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Very Good—But Not Good Enough!

THE EFFORTS BEING MADE by the managements of the railways to reduce congestion and increase the amount of freight moved are bearing fruit. As was shown by detailed figures given by the *Railway Age* last week, the accumulations of cars at various points are steadily diminishing while the amount of freight handled is steadily increasing. The campaign to increase the average miles per car per day is resulting in numerous roads approaching or surpassing their past high records.

While, however, marked progress is being made, it is only sensible for railway executives and operating officers to recognize the fact that the progress being made is not as rapid as the welfare of the railways and public demands. In spite of the improvement in operation which has been made the number of cars being loaded and the number of tons being hauled are still less than they were at this season in 1917 and 1918. Freight demanding movement in the fall and early winter of each year almost always largely exceeds the amount which demands movement during the summer.

Car shortage in July and August almost invariably foreshadows a very much larger car shortage in October and November. In 1917 and 1918, when the movement of traffic during the summer was so vast, the railways in the fall and early winter proved entirely unequal to the demands. The amount of freight now actually in existence and awaiting movement on the farms, and in the storage yards and warehouses of manufacturers and other producers, probably is larger than ever before at this time of year. If there is added to this vast existing accumulation the normal increase of freight next fall the demands upon the railways will be unbearable unless they increase the efficiency of their operations beyond the standards attained in 1917 and 1918.

In order to increase operating efficiency to the point that conditions do demand, and will continue to demand, more speed must be made in repairing cars and putting locomotives in good condition. The statistics regarding the bad order car situation are not improving. Freight cars were allowed to get in such bad shape under government control that, in spite of all the efforts being made to expedite repairs, the number of cars needing repairs tends to increase.

Still greater efforts must be made to secure the re-location of equipment. It is still true that a large majority of the cars on each railway are foreign cars, and human nature is such that few railroad managements will make as great efforts to repair other companies' cars as their own.

Perhaps the most important reason why greater efforts to re-locate equipment are needed, is that it is still true that many railways have upon their lines many more cars than they own, while others have upon their lines many less cars than they own. Now, if a railway has been well managed and developed along sound lines, the number of cars it has provided for itself usually roughly approximates the number it can handle efficiently with its own locomotives, tracks and other facilities. Therefore, the usual result of some railways having on their lines a great many more cars than they own is that they become so congested that they cannot move cars with maximum efficiency, while the railways to which the excess cars in their possession belong are rendered short of cars and thereby disabled from moving all the traffic they are capable of moving. Consequently, the effect of faulty location of cars is to reduce the efficiency of operation of practically all the railroads of the country.

Cars usually get upon the tracks of a particular railroad because they are consigned to it under load. Unless the movement of traffic is controlled there is a natural tendency of freight cars to accumulate in excessive numbers upon certain roads and in certain large terminals. The only way to prevent this congestion from chronically developing when a traffic is moving which taxes the capacity of the railways, is for some means to be adopted to keep out of these terminals and off these particular railroads a greater number of cars than experience repeatedly has shown they can efficiently handle.

The simplest and most effective way to deal with the problem would be for the managements of the particular railroads on which accumulations and congestions constantly tend to develop, to refuse to accept more carloads of freight than experience has shown they can efficiently handle. There are few railroad managements that have shown the moral courage to refuse temporarily to accept more business, even when they have known from experience that for them to accept business beyond a certain point would cause accumulations and congestions on their lines, and thereby not only slow down the movement of business on their own lines, but also reduce the amount of business that could be handled by the railroads as a whole.

In the interest of the public, in the interest of the railroads as a whole, and in the interest of individual railroads there is a crying need at the present time for the display by railroad managements of the moral courage to refuse to accept traffic which they know, or ought to know, they cannot efficiently handle. Railroad managements dislike to refuse business because they fear it will impair their reputations in the eyes of shippers. Some of the most important railroads in the country within recent months and years have injured their reputations far more by accepting business they could not handle, and thereby acquiring a reputation for inefficiency in operation, than they could possibly have hurt them by frankly and courageously putting out embargoes when they had upon their lines all the business they could satisfactorily move.

The railways and the country are going through a period of transportation stress now, and only a very great increase in operating efficiency will prevent a still more acute crisis next fall. When that time comes, while the railways will probably be unable to show that they are succeeding in moving all the business offered to them, they must, in order to satisfy public sentiment, be able to give the public facts which will conclusively show that at least they are moving more business than they ever did before. We have no doubt that in spite of the present unsatisfactory condition of tracks and equipment the railways can move more freight than they

ever did before, but in order to do so, they must increase their efficiency more than they are now increasing it.

The needed increase in efficiency can be obtained only, first, by the individual operating organizations doing their utmost, and, second, by the railways co-operating as closely as they can together, each largely subordinating its own supposed immediate interests to the long-run interest of all.

Plain Questions About Plain Engines

Operating men are accomplishing today what would have been deemed impossible 20 years ago. They will be doing many things 20 years hence that would not be attempted today. Broadly speaking, it is the increased trainload that has made this possible and on which we are counting for the future. What has made it possible to haul the increased tonnage that developed on your railroad during the last 20 years? What is going to make it possible to cope with the tonnage problems that will develop within another 20 years? If the locomotive has been the biggest single factor in the past, will it not continue to be the only firm foundation upon which you can expect to build a better operating structure with which to meet the future? If your predecessors had been satisfied with the plain engines and had adhered to the types of 20 years ago, would your railroad be a solvent corporation today, would it be serving the public as it has a right to be served? If you fail to take advantage of *all* the refinements that are calculated to increase locomotive efficiency and capacity and saddle your railroad with plain engines in this enlightened period, will the public forgive you 20 years from now?

Sweeping in Front of Our Own Doors

One of the most difficult problems confronting operating officers at the present time is that of relocating equipment in accordance with traffic demands and at the same time getting it on the rails of the owning road. With the abolition early in the period of federal control of per diem and the removal of all restraint on the movement of cars, they became more widely scattered than ever before. This has given rise to a number of problems, not the least of which are those of the placing of equipment suitable for the traffic of the originating roads and the repair of the equipment on foreign lines. The Commission on Car Service is giving very close attention to this subject and among the suggestions which it made some time ago was one that each road study its own car location statement to ascertain the number of foreign cars on its lines and then to take the necessary steps to return them to their owners. If the officers in charge of each railway and of each individual division of each road will see that the equipment under their respective local jurisdictions is handled in accordance with the suggestions and instructions of the Commission on Car Service, the problem will be on a fair way to solution.

The First Fuel Commandment: Organization

There is no royal road to fuel economy and it will require an organized effort to reduce the fuel bill on any railroad. If the railroads hope to make any appreciable reduction in the current fuel consumption they must support an organization for this purpose; the first commandment with respect to saving fuel as with the successful conduct of every other activity of the railroad is to *organize*. If fuel economy were essential to getting trains over the road on time, the problem might properly be assigned to the operating department, or if it were requisite to developing the maximum capacity of a locomotive, the motive power department might be held wholly responsible. But fuel use is sensitive to almost every activity of the railroad and there is not a railroad in the country that can expect to derive maximum fuel efficiency from the facilities at hand without an organization that can provide thorough instruction for all employees directly responsible for fuel use and supervision sufficient to insure general adherence to good practice. The particular department with which this organization is identified is not a vital consideration nor is it an independent fuel department essential to fuel efficiency although such a department might prove very desirable. The important thing is that this organization have the breadth and capacity to co-relate the activities of other departments in a manner calculated to enlist their co-operation in everything about the operation of the railroad that makes for fuel economy.

Cutting Down the H. C. L.

Intelligent citizens generally are greatly disturbed over the continued high cost of living. Railroad employees have strenuously complained about it and have insisted upon a heavy wage increase to offset it so far as they are concerned; many of them are not unmindful of the fact, however, that part of this burden has been passed on to others who are much less able to carry it. Railway employees, if they will only realize it, can do more to force down the cost of living than any other body of men in this country. Primarily costs are dependent upon the relation between supply and demand. The supply of materials is today controlled almost entirely by the limited transportation facilities. Finished materials cannot get to the market; industrial plants are discontinuing or curtailing production because of the lack of raw materials, or the piling up of finished products which cannot be shipped; vast sums of money are tied up because of slow transportation; many men are employed at a heavy expense to follow up and expedite the movement of cars in transit. Railroad facilities cannot be increased rapidly enough to care for the enormous traffic. Railway officers and employes, however, by painstaking and intelligent effort and enthusiastic teamwork, can make much better use of the present facilities. Relief—and about the only relief that can be afforded to the people and industries within the next six months—will be measured almost exactly in the proportion that the human element on the railroads speeds up and makes better use of the present transportation machine. It is within the power of railroad employees very appreciably to reduce the high cost of living.

Engine Terminal Supervision

Abundant supervision of engine terminal forces is essential to the full utilization of terminal facilities, be these ample or meagre. What can the most painstaking preliminary inspection of locomotives arriving at terminals amount to if there is not the supervision to insure the execution of the work reported? What will be the actual return on an investment in a modern terminal if the supervision provided is not of a character to compel the full utilization of every improved feature? Terminal work does not naturally attract the highest class of mechanics and it is often necessary to utilize men who require more instruction and personal guidance than employees in other shops. Unexpected difficulties and annoyances are common to terminal operation and there must invariably be some one on the job who has the authority and the capacity to meet any emergency. It is a grave mistake

to have too few foremen at the engine terminal. Foremen for terminal work should be selected so far as possible from men who have been trained in engine house work and are accustomed to the unusual and frequently trying conditions imposed. The men in charge of terminal operation must be of the highest caliber, they must be clothed with ample authority and they should be dignified with a title and recompensed with a salary that indicates a full appreciation of the great responsibility and the serious character of the task.

What Form of A Labor Policy Have You?

The railroads undoubtedly must adopt some far more definite and constructive policy in regard to maintenance of way labor than they are now following, if they are to make substantial progress along the line of increasing the output per man and reducing labor turnover. Increases in wages actually have been resulting in decreased efficiency, making it evident that money is not such an important influence on efficiency as it was two or three years ago. Another point much commented upon is the lack of ambition in the average laborer of today. With these two incentives to better work gone, or so nearly gone as to be almost worthless, a new incentive will have to be developed. To be successful, this will require reversal of attitude on the part of a majority of officers. In spite of all that has passed, the old sentiment expressed in the sentences, "Treat 'em good and give them a real place to live in? What's the use? They don't stay long enough," still remains and is apparently as much alive as ever. If progress is to be made from now on, the maintenance laborer must be approached on his weak side and at present that consists of a strong desire to live better, eat better and play more than he ever did before. Of course, a laborer, either good or indifferent, does not stay and will not stay in one place if he can get more money plus better living conditions elsewhere. Remove the latter disadvantage of railroad employment, consider each man a fixture, give him opportunity for amusement, and the larger wage he can get elsewhere will largely lose its attraction, and a feeling of permanency will be created in the man himself. The situation should be studied as a man-to-man proposition and it should be remembered that the Golden Rule is not an empty phrase.

The Roads Are Taking the Initiative

As stated specifically by Judge Barton, the recent decision of the Railway Wage Board included no provision for the engineering employees of the railroads. Consequently, a differential has been set up to the disadvantage of the technical men, thereby creating a situation which was the subject of considerable discussion during federal control. Certain well known characteristics of government management made that period peculiarly propitious for the presentation of claims for special consideration by the various classes of railway employees and for the first time in railroad history the engineers were represented and received appreciable concessions. The question then raised concerned the opportunity for continuing organized efforts in behalf of the engineer after the return to private management. The answer has come quickly and in a form possibly unexpected. Many of the railroads are now themselves taking the initiative by arranging for adjustments of engineers' salaries which bid fair to eliminate the present disadvantageous differential. At this time it is impossible to say how general this tendency is—surely, it is to be hoped that those roads which have not undertaken such corrective measures will follow the lead of the others. While the above remarks relate particularly to the engineer, the necessity for adjustment of compensation applies with equal force to all classes not covered by the wage award, including the officers—in other words, to those who are employed for something beside the performance of a designated task, namely, the exercise of initiative and executive ability. In the employment of brains no road can afford to pay less than the market price. No class of men on the railroads deserve better of the managements than the subordinate officers; and every consideration of fairness and efficiency demands that the managements shall promptly and voluntarily take action which will at all times make the compensation of the subordinate officers relatively as great as that of the employees whose work they supervise.

Relieving Telegraph Wires of Peak Load

The constantly expanding business of the railroad telegraph departments has become a matter of real concern to more than one road. During federal control message traffic increased tremendously because of the centralization of authority at Washington and the regional headquarters. The Railroad Administration, various boards and committees established orders and practices which made it necessary to use the telegraph to a greater extent than ever before. Also the general expansion of business throughout the entire country required the more general use of the wires for commercial purposes. Since the return of the roads to private management message traffic has in general continued to increase and under present labor conditions it is a difficult matter to get experienced operators and other employees to handle the work as wisely and economically as is desirable. This congestion can be relieved to a considerable extent if all messages are prepared promptly and sent to the telegraph office as early in the day as possible. Another measure which will also relieve congestion, is that of using traingram service more generally. Many messages are prepared during the day and particularly in the late afternoon, which can be sent satisfactorily by traingram and delivered at destination either on the same day or early the following morning. However, to make traingram service a success its control should be centralized and all the departments through which such business is handled must co-operate to the extent that prompt and efficient service will result. Under any system adequate supervision is absolutely necessary, otherwise this method of communication will soon be discarded.

Organization and Efficiency

A duplication of work or of the use of materials by different departments in any organization tends towards decreased efficiency and monetary loss. In an organization as diversified as a railway it is evident that certain departments must have work more or less in common in which materials of a similar nature are used, as a consequence of which particular kinds of materials specified by each department are carried in stock, the variety of which could be cut down greatly by the co-ordination of materials under one responsible head. As an example of the duplication now existing on many roads electrical work is carried on under the divided jurisdictions of the mechanical, signal and telegraph departments and on some roads also under the chief engineer who may have an electrical engineer on his staff to handle station lighting standards and similar work. Much of this work is common to all of these departments and the men, whether on electrical, signal or telegraph pay rolls are passing each other frequently in the same territory to do work which any one of them might well do as he goes along. Again, each department specifies certain materials, such as wire, and each may

be using wire of a different manufacture, which means that money is tied up in more material in the store houses than is necessary or desirable. In an effort to improve this condition, some roads have made one man responsible for all work of a similar kind, eliminating duplication of effort and of materials. In some cases the signal engineer has been placed in charge of all signal and telegraph work, in others the superintendent of telegraph has handled the combined duties, while in still other instances one responsible head has jurisdiction over the signal telegraph and electrical work. The kind of organization best adapted to a road is dependent on the conditions existing on that system, but the results obtained with a combined organization have been good.

Spring Shop Needs

It is an undisputed fact that the departments for repairing and making new springs are very much underequipped in some railway shops; are poorly arranged for production in other shops; and in still others, the heat treatment is so carelessly given that satisfactory results cannot be obtained. Any of the above defects, either singly or in combination, will seriously affect the output not only of the spring shop as a unit but of the repair shop as a whole. Locomotive trailer springs, driving springs, pony truck springs and tender truck springs are essential parts of locomotive equipment. The total number of springs repaired annually is exceedingly large and if careful planning or the rearrangement of machines will reduce a little of the time required to repair each spring, the total saving will be proportionately large. In order to reduce labor charges to a minimum, machinery must be used wherever possible. The operations of shearing the plates, nibbing, cambering, hardening, drawing, banding and testing may all be performed with little hand physical work. Properly arranged slides from one machine to the next will reduce the labor of lifting springs. Quantity of output is desired but not at the expense of quality. Only too often, a locomotive repaired and ready for the road has to be kept out of service an additional day on account of trailer spring defects, such as broken sheaves, too light bands, or springs that will not stand up. Even heating and cooling are absolutely essential in hardening and particular care must be taken when drawing the temper. Pre-determined, correct temperatures can be maintained by using pyrometers. Questions of the proper solution for drawing, correct temperatures, the length of time required to heat plates of various sizes, and methods of testing, have been worked out and important results can be obtained by incorporating this approved practice in railway spring shops.

It Can Be Done

One of the goals which the Association of Railway Executives set before the roads in an announcement made on July 16, was to attain an average movement of 30 miles per car per day. That this would be no mean accomplishment is evident from the fact that the average movement in 1919 was 23.1 miles, while the highest ever reached for any year was 26.9 miles in 1916. The relief which the reaching of this goal would afford is best indicated by the statement that it would be equivalent to adding almost 700,000 cars to those in service last year. It is too early to ascertain the effect of the announcement of the executives, but the possibility of attaining this goal is indicated by figures which are now available from a number of roads which had already undertaken similar efforts individually. In studying these statistics it should be borne in mind that the goal set by the Association of Railway Executives is necessarily an average for the entire country and that the improvement on an individual road can only be measured by comparison with earlier performances. Thus, because of local conditions one road with an average of 35 miles per car per day may be doing poorer relatively than another road which, with other conditions has an average of only 20 miles. Bearing this in mind it is gratifying to note that one large western road increased from 23.16 miles in June, 1919, to 32.03 miles in June of this year, or 26 per cent, while another large western road increased from 27 miles in July, 1919, to 32 miles in July, 1920, or 18 per cent. Similarly encouraging records are being made by a number of other roads. However, if the goal which the executives have set is to be reached it is necessary for *every* road to make a corresponding increase. That it can be done by every road is indicated by the records referred to. That it must be done *by every road* is equally evident. No management can afford to convict itself of inefficiency by admitting its inability to improve its operation in this respect.

Conservatism and Electrification

"Is America to be recognized as more conservative than foreign nations in its reconsideration of problems of electrification of steam railroads after the war?" This is the sentence used by the Electric Railway Journal to introduce an editorial in its issue of August 14 entitled "Why Cannot Railways Here as Well as Abroad Electrify?" The tenor of its argument is that railways in Great Britain and in Switzerland are now electrifying, so why should we postpone our own electrifications as "an ultimate goal to be coveted for some future and better day."

These comparisons are unwarranted. With the exception of 18 route miles of mineral line between Shildon and Newport on the London & North Eastern, all the electrified railways in England are of the suburban type operated on the multiple unit system and are not for trunk line freight traffic which predominates in the United States. Further than that the London & South Western has recently decided to postpone an important electrification project because of the abnormal increase in costs of material, the refusal of manufacturers to give "firm" quotations or to guarantee deliveries within a reasonable time, and the impossibility of raising fresh capital while the present uncertainty as to the future position of the British railways continues.

As to Switzerland, the difficulty there is fuel. Since the signing of the armistice the Swiss railways have found it impossible to get the necessary supplies of coal which formerly came from Germany. It might almost be said that the Swiss prefer to use their extensive water power to run their railroads rather than to burn up their wonderful national forests.

We agree that the idea of electrification is "to be commended"—that is, where the conditions are properly favorable—but that is a thing for each individual railroad to decide. It cannot be decided on the basis of what is being done under entirely different conditions of operation abroad. Further than that, we must also take issue with the idea that the American railway men may be "conservative" in not giving more consideration to electrification. Consider, for instance, how difficult it is to raise capital at present, or how much it is needed for new cars, new locomotives, new yards, sidings, etc. Remember also the great progress that has been made in steam locomotive practice through refinements in design and the adoption of economy producing devices. There is no reason now for believing that American railway men will be more conservative than they have been in the past. We feel confident that they will adopt electrification for certain divisions as soon as it may become desirable for special or favorable governing conditions.

Modernizing Engine Houses by Reconstruction

The Boston & Maine Rebuilds Old Structures and Installs Monitor Roofs to Increase Efficiency

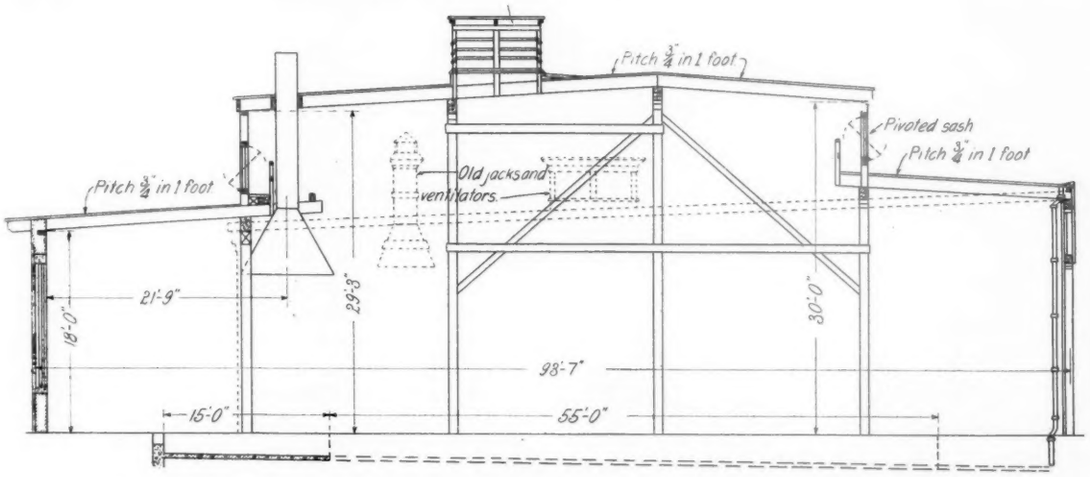
As a result of the shortage of money, material and labor which was available for railway use during the participation of the United States in the World War, the Boston & Maine has developed an interesting method of remodeling existing engine terminals. This consists in general of replacing old shed-type roofs by modern monitor roofs, giving a greatly increased clearance and resulting in better lighting, ventilation and working conditions. This has been accompanied in some instances by the lengthening of some of the stalls and pits and by some rearrangement of the enginehouse entrances, etc., while the entire structure has been reinforced or parts replaced wherever such work was needed.

To date this work has been completed on four enginehouses located at East Cambridge, Prison Point and East Somerville, Mass., and at Nashua, N. H., the first two being 50-stall houses and the last two 33 and 15-stall houses, respectively. All these structures are of the radial type having brick or stone foundations, supporting brick walls and a timber superstructure. Through natural causes resulting from their long use they had deteriorated greatly and in addition the increased size of the locomotives and the increase in engine movements have rendered them somewhat inadequate. This made it necessary that either new structures be built or that the old enginehouses be remodeled to fit the changed conditions. In order to secure a maximum amount of service for a minimum expenditure it was decided to remodel such houses as required immediate attention and a program was laid out on that basis.

The work on the East Cambridge house was the most extensive and embodied practically all of the changes which were made throughout the remodeling program. This, as stated, was a 50-stall house covering a full circle and having three entrance stalls, the entire unit being served by an 85-ft. turntable. All stalls were 75 ft. deep, the inner radius of the house being 95 ft. 6 in., and the angle between stalls 7 deg. 12 min. The distance between columns on the inner or turntable end of the stalls was 11 ft. 10 in. and between the pilasters in the rear wall, 21 ft. 5 in. Each stall was divided into four bays of about 18 ft. 6 in. each. In addition to the installation of a monitor roof at this house the program called for the extension of 12 stalls to give an increased length of one bay, or approximately 18 ft. 7 in., making a total depth of stall of 93 ft. 7 in.

The reconstruction work was carried out in sections of from two to five stalls, the number depending upon how many could be released from service conveniently at one time. All of the old roofing, rafters, purlins, smokejacks, ventilators and interior posts, etc., were removed and the old brick walls cut down to a line about 14 ft. above the floor. In the sections to be extended the old walls were completely removed down to the foundation supporting them.

The extension, as stated, was made one bay deep and consisted of a brick wall supported on concrete foundations and carrying a timber superstructure in the form of a shed roof. Outside of the construction of the addition which will be described later, the same methods were used throughout the remodeling program wherever the stall length remained unchanged. The old pier foundations were overhauled, the top being removed in most cases after which they were again built up and capped with a 1-in. cast-iron plate, 12 in. square, and drilled centrally to receive a 1-in. steel dowel.



An Additional Bay and Increased Head Room Improved the Working Conditions

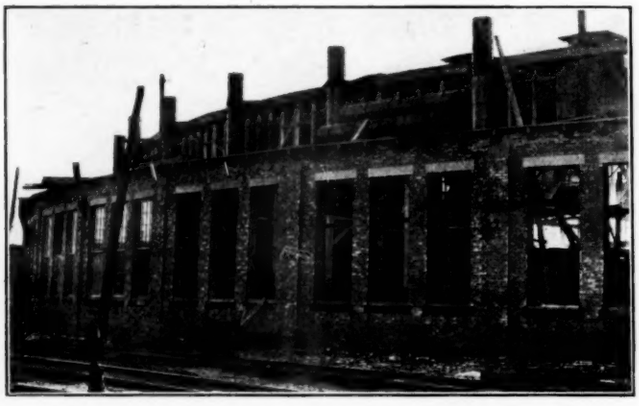
As the back wall of the monitor was to be the back wall of the engine house proper in all but the addition, it was built up to a height of 29 ft. 3 in. measured from the floor, while new pilasters were constructed the full height. Where the old foundations were not wide enough to carry the full depth of the pilasters which were 2 ft. 4 in. wide and 8 in. deep, they were corbelled out. All new work was thoroughly bonded to the old walls. Practically all of the interior posts were replaced by new 10-in. by 10-in. hard pine timbers while the majority of the old brick and wood columns between the doors in the inner wall were replaced by steel.

The monitor section had a depth of three bays or approximately 55 ft. 9 in. with 29-ft. 3-in. clearance at the back wall and 30 ft. at the front. The 10-in. by 10-in. interior posts carried 10-in. by 14-in. and 10-in. by 16-in.

purlins and 4-in. by 12-in. rafters which supported the roofing. The roofing was built up of 2-in. planking covered with a standard tar and gravel roofing. Drainage was in two directions, the hip or peak of the roof being off center or on the third toward the doors. A ¾-in. to 1-ft. pitch was used throughout in the roof construction of the monitors and the extensions.

Ventilation was secured by combination of movable sections and pivoted sash windows set in the back and end walls and in both faces of the monitors. In addition a 5-ft. by 8-ft. wooden ventilator was placed approximately over the center of each stall. The pivoted sash which was used throughout in the monitor was not mechanically operated from the floor and it was thus necessary to make some arrangement whereby they could be opened or closed without too much trouble. This led to the construction of two plank walks running around the entire house, one for each wall of the monitor. These consisted of two 2-in. by 12-in. planks resting on 4-in. by 6-in. supports which in turn were supported by hard pine members bolted to the brick work on the back wall and in the extension, by the rafters of the shed roof. This latter method was used throughout in the construction of the walk around the inner circle.

The 12-stall extension was carried on concrete foundations, which, because of their nature, are of considerable interest. The type of foundation decided upon consisted of concrete piles one of which was placed under each pilaster in the back wall, or approximately 23 ft. apart. The piles differed from the ordinary concrete piles, being 3 ft. in diameter and expanded at the bases to 4 ft. 8 in. in diameter. The piles which are known as Gow piles were poured in place, a method which necessitated the excavating of pits or wells which were carried down 40 ft. below the level of the old foundation. The concrete was then poured in sections, the forms being brought up after each section was completed. No reinforcing bars were used, the piles or piers being of mass construction. These piers



12-Stall Extension During Construction

carried heavy reinforced concrete beams 20 in. wide, 35 in. deep and 23 ft. long, upon which the walls and superstructure were carried.

The walls were of brick and were constructed similar to the remaining back walls of the enginehouse, the superstructure or roof being given the same treatment used before, while the rafters were allowed to extend through into the monitor to support the plank walk already described and, in addition, to form a partial support for the smokejacks.

In connection with this work the old 55-ft. engine pits were extended a distance of 15 ft., thus giving an over-all length of 70 ft. for the new pits. In constructing the pit additions the ends and side walls of the old pits were cut back and torn out down to the surface of the old foundations and back far enough to allow for a 2-ft. 6-in. lap of the extension.

The new work was supported on its outer ends by a concrete pile or pier similar to that used under the rear walls. In this case the base was increased to 5 ft. 6 in. in diameter and the main body of the pier, 3-ft. in diameter, was surmounted with a pedestal top poured so as to form a square bearing surface measuring 7 ft. on each side, or the full width of the pit walls and floor. The total length of the pile was 40 ft., as in the preceding case.

The pit extension, itself, consisted of two reinforced concrete walls 16 in. thick and 29 in. deep, united at the time of pouring by an 11-in. concrete floor crowned to correspond with the old floor. The upper surfaces of the walls

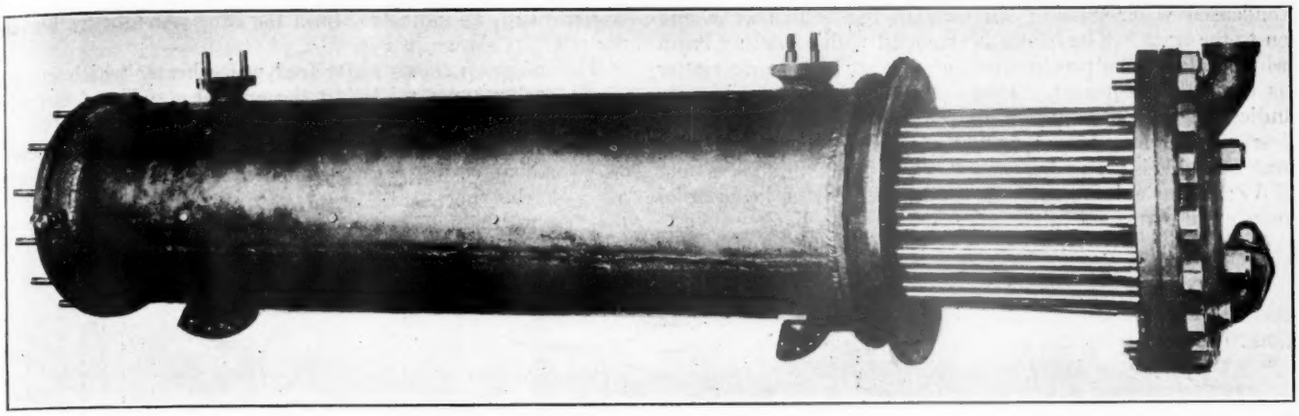
Note Old and New Brickwork on Rear Wall

were capped by 12-in. by 16-in. timbers, upon which the pit rails were carried.

The smokejacks used were designed by the Boston & Maine and were constructed entirely of wood covered with fireproof paint. Metal fastenings were eliminated wherever possible. The 3-ft. 6-in. by 8-ft. 9-in. bell was built up of ⅞-in. cypress planking, framed and braced by 2-in. by 4-in. timbers, the entire unit being bound together by the use of ⅝-in. oak plugs. The stack, with an interior diameter of 2 ft., was built up of 1⅜-in. by 3-in. by 14-ft. staves, the narrow edges being grooved centrally for its full length to receive a locking strip, which, in connection with five ¾-in. galvanized iron hoops, acted as a binder to hold the various staves in position and to prevent the leakage of smoke or gases. The only metal exposed to the action of the gases was the heads of the four supporting bolts and the cast-iron channels around the bottom.

This work was designed by and carried out under the direction of the engineering department of the Boston & Maine, A. B. Corthell, chief engineer, F. C. Shepherd, principal assistant engineer, and H. B. Fletcher, architect, with G. L. Huckins, engineer of construction, in direct charge of the work.

Railroading in 1871.—Wallace Doolittle, a Union Pacific pensioned engineer, relates the following: "I went to work for the Union Pacific early in the year of 1867 and worked in the car shops at Cheyenne over two years. In 1869 I began running as Pullman conductor between Omaha and Ogden. I was required to double the road each week. One trip I made in the winter of 1871 and 1872. We left Ogden on time and arrived in Omaha on the 28th day thereafter, having been delayed on account of snow. The railroad company had few snow fences or snow sheds at that time. At one little cut near Miser, Wyo., close to Rock River, we were detained just ten days. The company provided plenty of soda crackers and condensed milk, so no one suffered for lack of provisions."



The Knorr Locomotive Feed Water Heater

Feed Water Heating on European Locomotives

This Device Is Now Regarded as a Practical and Economic Necessity on Many European Roads.

By Robert E. Thayer
European Editor of the *Railway Age*

WITH THE PRESENT COST of coal anywhere from 200 to 1,600 per cent of what it was before the war, the railways of Europe have been forced to consider very carefully means by which locomotives can be operated with a decrease in fuel consumption. Superheating is, of course, quite universally adopted, although in England this method of saving fuel has not been developed to the same extent as on the railways in the United States. The use of feedwater heaters is one means of fuel economy which is now receiving the greatest attention particularly on the Continent. It is estimated that there are over 10,000 feedwater heaters in use on the railways of Europe. These are distributed amongst the Weir system, the Caille-Potonie system and the Knorr system, the latter having by far the greatest distribution. The Weir system is confined almost entirely to Great Britain, the Caille-Potonie to France and the Knorr to Germany, Holland and Switzerland.

The Weir System

The Weir system of feedwater heating consists of a double-acting steam feed pump which takes the water cold from the tender through the pipe *E* forcing it through the heater *A* into the boiler through the discharge pipe *G* as shown in Fig. 1. The pump is of a vertical type and is of a design largely used in marine service. The heater is shown diagrammatically in Fig. 2. It conists of a bundle of tubes of solid drawn copper expanded into tube plates *E* of rolled brass. These tube plates are fixed to the ends of a mild steel shell by collar bolts which also carries the end covers of the heater. The covers contain dividing ribs which cause the feed water to flow from end to end of the heater, making four passes. The exhaust steam from the clyinders enters the heater at *B* and from the pump at *C*. Thus it will be seen that the exhaust steam surrounds the tubes and with the feed pump between the heater and the tank the heater is subjected to boiler pressure.

The Caille-Potonie System

The Caille-Potonie system is of the open type, the water flowing from the tank to the feed water heater by gravity, a hot water pump being used to take the heated water from the heater and pump it into the boiler. A diagrammatic outline of a recent installation is shown in Fig. 3. The water from the tender passes through the pipe *M* to the "Y" fitting *P* which delivers the water to the top and bottom of the heater. The heated water is taken off at *J* passing through the pipe *Q* to the pump *S*. From there it passes through the pipe *T* to a check valve and into the boiler.

The exhaust steam for heating the feed water is taken from the exhaust nozzle *A* passing through the pipe *C* to the heater. The exhaust from the feed pump also passes to the heater through pipe *X*. The amount of exhaust steam to be taken from the exhaust pipe is regulated by a deflector valve which is set to deflect the proper amount of steam to the heater. The heater itself is kept at atmospheric pressure, a pipe *R* extending up from the top of the heater to above the water line in the tender. This not only provides a means of overflow for the heater but also permits the air and gas formed in heating the water to escape. A spring regulator valve is shown at *D*. This is placed in the pipe *C* between the heater and the exhaust pipes and is so regulated that when the pressure of the exhaust steam in pipe *C* exceeds a predetermined amount the supply of exhaust steam to the heater is reduced. Its purpose is to prevent the feed water in the heater being raised above a temperature which the pump can handle. The pump, however, is designed to handle water with a temperature of 209 deg. F. without a loss in its efficiency. As the temperature in the feed water heater increases the pressure of the exhaust steam in pipe *C* increases and overcomes the spring of the regulator valve and thus reduces the supply of the exhaust steam to the heater. A pyrometer is placed in the heater discharge pipe, the wires of which pass through the conduit 3 to a gage in the cab. A connection is made in the delivery pipe *T* and piped through *I* back to the cab to a gage which indicates the pressure of the feed water in the delivery pipe. Another connection is made in the delivery pipe for sprinkling the coal in the tender, the water passing up pipe 6 back to a tap in the cab.

The heater itself is shown in Fig. 4. The water surrounds the tubes and the exhaust steam passes through them. Entering at *A*, it makes three passes through the heater, the

condensed water passing out through the bottom at *B* and on to the track. The heater is provided with a settling basin which catches the precipitation of any scale forming matter as the water is heated. This basin has a cleaning hole as indicated in the drawing by means of which it can be cleaned every 400 or 500 miles depending upon the character of the water handled. The hot water steam pump in this system is located on a level with the feed water heater in order to reduce the lift to a minimum.

The Knorr System

The Knorr system operates with the heater under pressure, the pump being placed between the heater and the tank. Fig. 5 shows the general arrangement of this system.

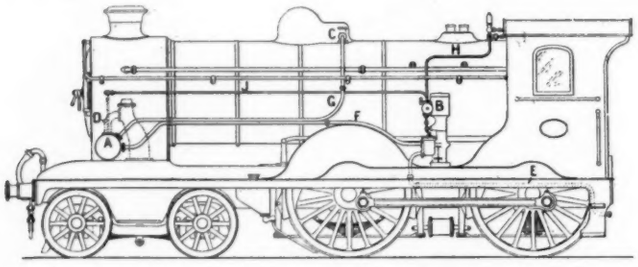


Fig. 1—Arrangement of Weir System of Feedwater Heating

Water from the tender passes to the pump *M* and from there to the heater *A*, being delivered from there to the boiler through pipe *F*. The exhaust steam is taken from the exhaust passages of the cylinder castings at *G* passing through the pipe *J* to the heater. Exhaust steam from the air pump is controlled, as indicated, from the cab. An illustration of the pump is shown in Fig. 6.

This diagram shows a flat feed water heater which is one of the earlier types made but the present standard heater is

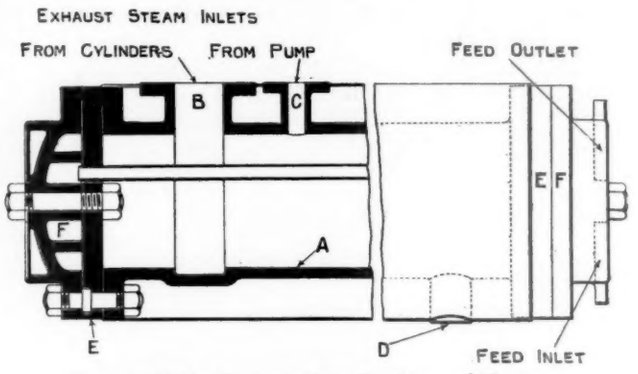


Fig. 2—Weir Locomotive Feedwater Heater

circular in shape as shown in Fig. 7. Also the condensate is shown as being discharged on to the track. More recent installations are arranged for the condensate and steam passing through the heater to discharge into the ashpan. This diagram also shows exhaust steam being taken from the exhaust passages in each cylinder but there are installations which take the exhaust steam directly from the exhaust pipe.

The heater as shown in Fig. 7 consists of a bundle of U-pipes which are held in only one tube plate. The water passes through these tubes making four passes, and the

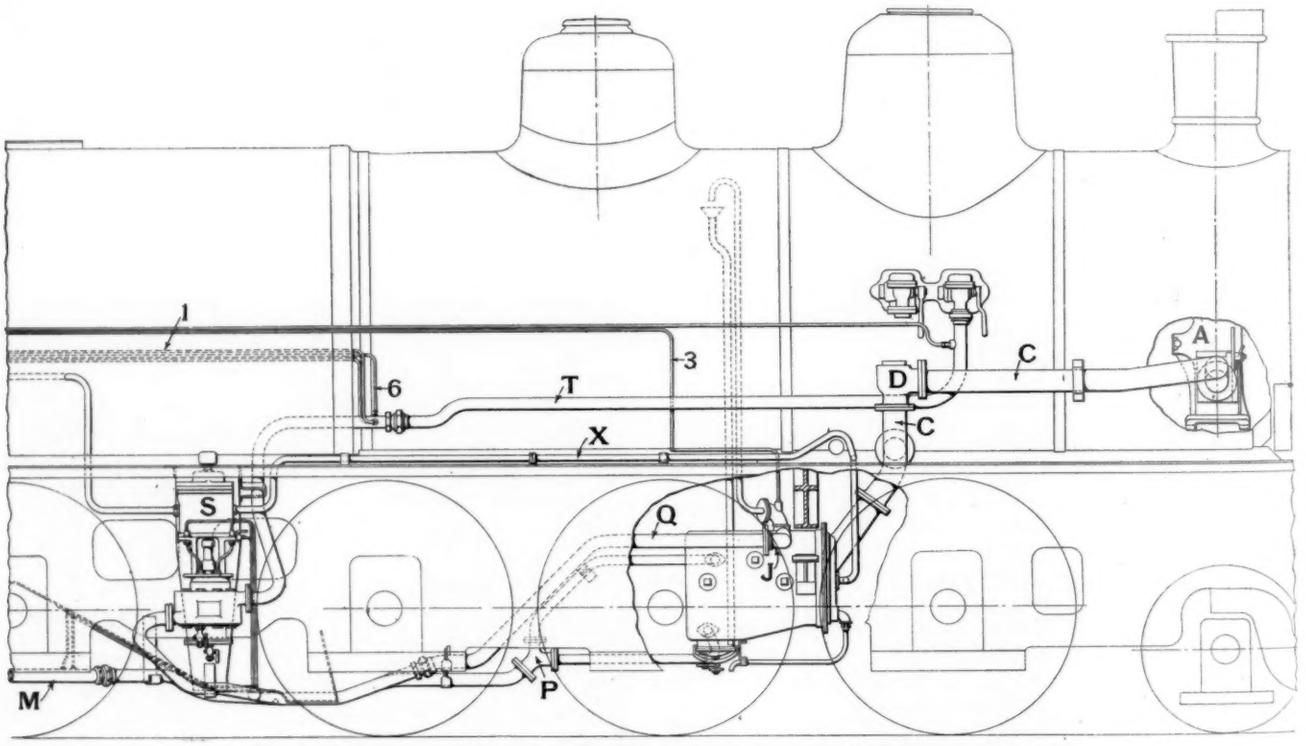


Fig. 3—Arrangement of the Caille-Pontonie System of Feed Water Heating

passes into the heater through the pipe *L* and the exhaust steam from the feed water pump passes to the heater through the pipe *K*. The condensate from the heater passes to the track through the pipe *R*. An oil pump for lubricating the feed water pump is shown at *Q* and *O* is a counter registering the number of the strokes of the feed pump. At *P* is located the steam valve for operating the feed pump. This exhaust steam surrounds them. The water enters the heater at *A* and is discharged at *B*. The exhaust steam enters at *CC* and the condensate out at *D*. The construction of this heater is such that all of the tubes can be removed intact with tube plate when it is desired. All of the tubes are bent to the same radius and are interchangeable. Any individual tube can be removed and replaced although it will be short-

ened by the length of its former bearing in the tube plate. With bad water difficulty is experienced in keeping these tubes clean on account of the U-shaped ends.

Development in England

In England but little has been done recently, although there is a tendency to seriously consider the application of feed water heaters to locomotives on account of the increase in the cost of fuel. The cost of locomotive coal has increased about 100 and 120 per cent. Almost every road has at some time or other done some experimenting—usually

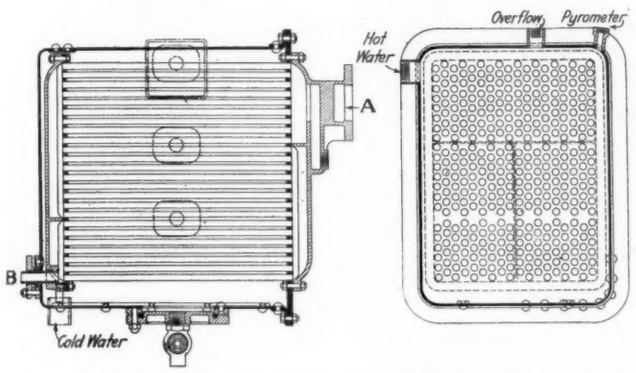


Fig. 4—Caille-Pontonie Locomotive Feed Water Heater

before the war. However, at the present time but few locomotives are equipped. Out of twelve railroads, five have none installed, one road has one, two have two, one has five, one has fifty-three and two have some, but the number was not stated.

Fig. 8 shows a 4-4-2 type side tank English passenger engine fitted with a feed water heater. Exhaust steam from the cylinders is admitted to the water tanks through the pipe *A*, the flow of which is controlled by a butterfly valve

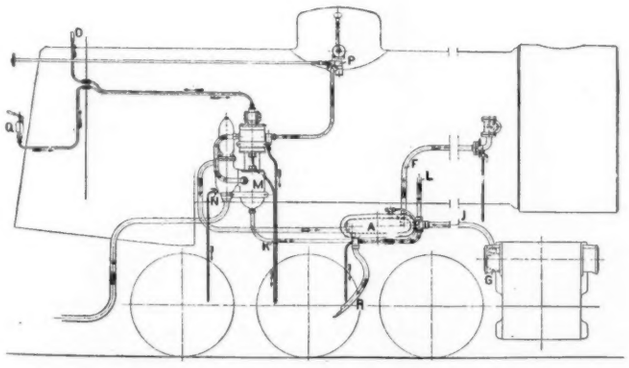


Fig. 5—Arrangement of Knorr System of Feed Water Heating

located at *B* and operated from the footplate. The temperature of the water is thereby rapidly raised, and as the hottest stratum lies at the top it is drawn off through the tubes *C* adjusted to the water level by a copper float, which is hinged at *D* thus allowing water to be taken at all levels by means of the "Weir" feed pump *E* and delivered to the boiler through an ordinary check valve *F* at an approximate temperature of 180 deg. F. This pump can be set to discharge into the boiler just as much water as is being evaporated and is capable of going very slowly without actually stopping.

The pump is driven by steam and the exhaust is utilized to heat the water in the tanks through pipe *G*. A supplementary heating ejector *H* is also fitted and takes steam from the boiler by means of the steam valve *I*. This is used to heat the water when the engine is being prepared for its day's work, and after it has generated sufficient steam. It is also used in turning the surplus steam into the tanks when the fixed boiler pressure is exceeded, and steam is being

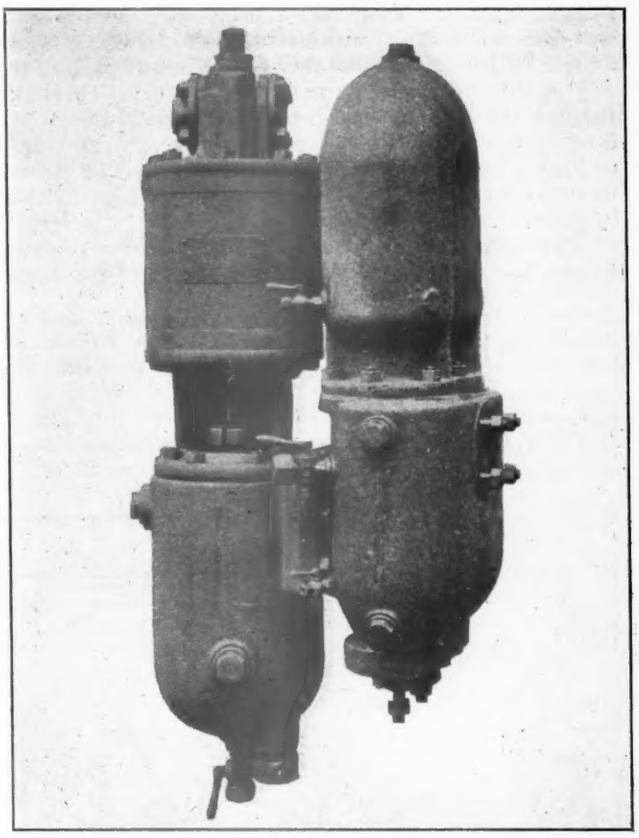


Fig. 6—Knorr Locomotive Feed Water Pump

blown off at the safety valves. This railroad has 42 engines fitted in this manner.

A similar arrangement of feed water heating is used on ten 4-4-2 tank engines, but in this case the delivery from the feed pump is taken to the check valve *F* fitted on a feed dome on the top of boiler (Fig. 9). The water at a tem-

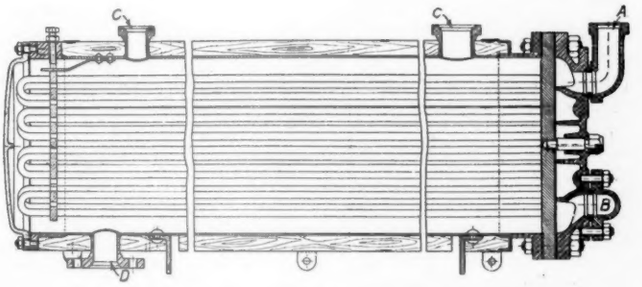


Fig. 7—Knorr Locomotive Feed Water Heater

perature of approximately 180 deg. *F* enters a closed drum at the center of the feed dome and clear of the delivery pipes *LL*, these being placed at the sides. As the drum fills the water overflows into the delivery pipes *LL* and passes into the boiler. The drum is made deep so that the sediment may be deposited at a sufficient depth from the mouth of the delivery pipes, as it has been found in the shallow domes that, owing to the velocity of delivery, a great bulk of the sediment is carried over into the boiler. A shield plate *M* is fitted over the steam pipe and as the water falls

onto it from the pipes *LL* it divides into streams which allows it to attain very quickly a temperature equal to that in the boiler. This arrangement has given entire satisfaction.

Feed Water Heating in France

The principal source of information regarding the development of locomotive feed water heating on French railroads was obtained from the manufacturers of the Caille-Potonie System. There are 146 of this type of heater in use, with 272 on order in France itself. There are 20 in Tunis, 8 in Belgium, 50 in Roumania and 3 in Turkey. Recent tests made by a prominent French road with the apparatus shown in Figs. 3 and 4 have shown a fuel saving of 17.8 per cent in fuel consumption per 100 ton-kilometers over the same locomotive using the injector and there was an increase of 22.3 per cent in evaporation. The cost of locomotive coal in France has risen over 700 per cent and there has been a manifest interest in feed water heating as shown by the large number of feed water heaters on order.

With the view to making comparisons we have also decided to fit feed water heaters to some of the locomotives which are at present in the course of construction. Ten of the Consolidation locomotives which are ordered from England will be fitted with the "Weir" heater and five of the Consolidated locomotives ordered from America will be fitted with the "Worthington" heater.

Feed Water Heaters in Holland

The railways of Holland have also a "coal problem." The price of locomotive coal has increased about 1,200 per cent from since before the war, and locomotive feed water heating has become very popular. This country uses the Knorr system entirely. There are about 300 locomotives out of a total of about 1,000, that are equipped and the present program calls for the application of heaters to all of the principal locomotives. This includes locomotives weighing from below 50 tons to the heaviest locomotive of 102 tons. The railways in Holland have made no conclusive tests with the feed water heater but it is claimed that a feed temperature of from 190 to 210 deg. F. is obtained.

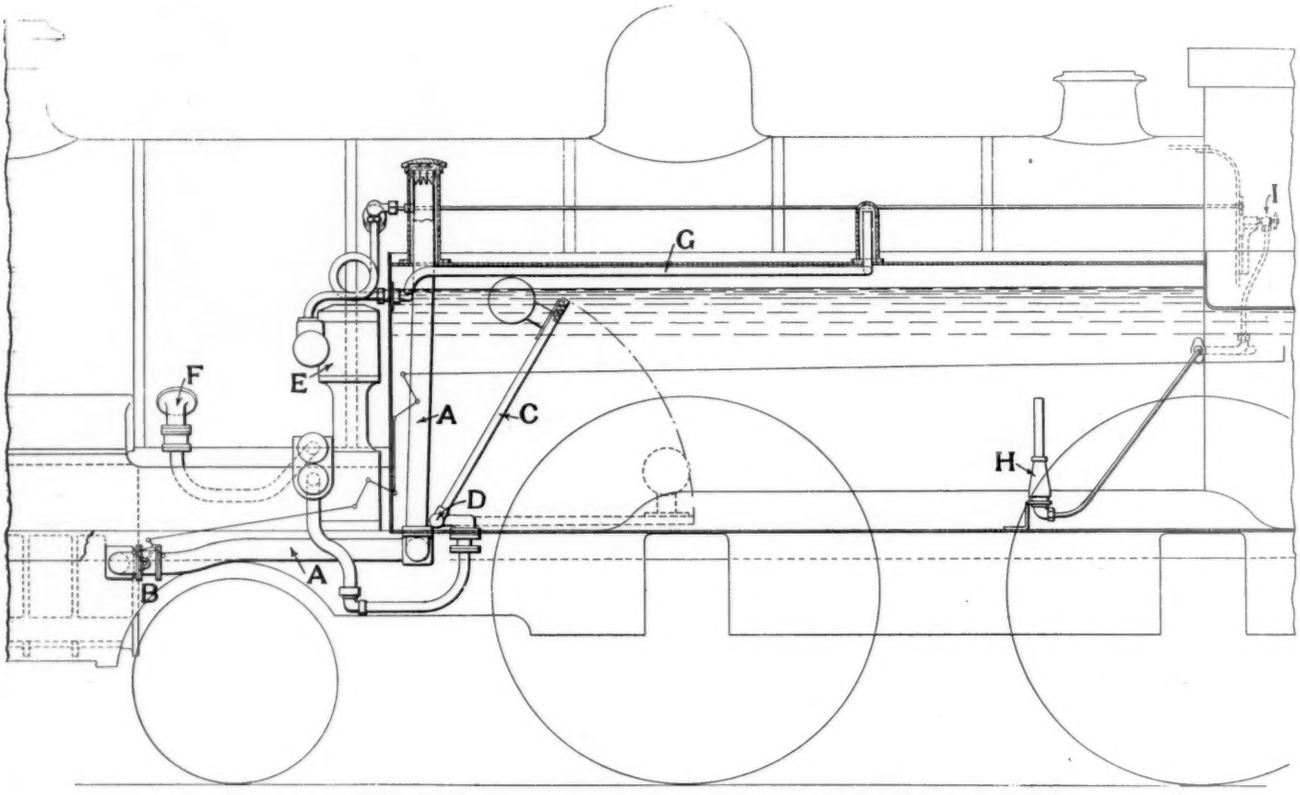


Fig. 8—Feed Water Heating Apparatus as Applied to English Tank Locomotive

Use of Feed Water Heaters in Belgium

The following abstract of a letter from Belgium indicates clearly the situation there:

Before the war we had decided to experiment with various systems of feed water heaters. Our object was not so much to find out what economy could be effected by the use of preheaters to a locomotive—the importance of which economy is incontestable—as to compare the systems in question from the point of view of efficacy, smooth working and upkeep. The war prevented us going on with the matter.

Among the locomotives supplied to us by the Germans in virtue of the terms of the armistice, a fairly large number of them are fitted up with the Knorr heaters. The present condition of the service has not permitted us to try experiments with a view to determining the economies resulting from its use. At the beginning some difficulties were met with on account of the inexperience of the staff, but these have now disappeared.

Results Obtained in Switzerland

The situation in Switzerland is well outlined in the following abstract of a letter from the chief mechanical engineer of the Swiss Federal railways:

The first experiment with locomotive feed water heaters on the Swiss Federal railways was undertaken on a new 4-cylinder simple, superheated locomotive, which was put into service at the end of 1913. The locomotive was fitted with an exhaust steam and smoke box heater in conjunction with a Westinghouse feed pump. This experiment was not satisfactory; the exhaust heater was much too small, it required much repairing on account of faulty construction, the smoke box heater hindered the passage of gases so much that to obtain a sufficient head of steam about half the tubes of this heater had to be removed, so that the heating surface was

reduced from the original 253 sq. ft. to 134 sq. ft. This feed heater also required much repairing, as the thin tubes became bent and cracks appeared in them. In 1915, therefore, both feed-heaters were removed, the exhaust heater with the feed pump being applied to a smaller superheated compound locomotive for which it is suitable.

At the beginning of 1915 two new superheated compound locomotives were put into service with exhaust feed heaters; one locomotive was fitted with a Westinghouse feed pump and a feed heater from the Winterthur Locomotive Works, the other with a Knorr feed pump and Knorr feed heater. Both arrangements have proved successful.

On the trial runs, which were carried out on the section Erstfeld-Göschenen (Gotthard railway), with a continuous ascent of 2.5 and 2.6 per cent, a saving in coal of about 10 per cent per 100 ton-kilometer was established for engines with feed heater in comparison with engines of similar construction without feed heater. The performance of the engines have been improved quite considerably in consequence of the installment of feed heaters. Therefore the 15 superheated compound locomotives delivered in 1916 and 1917 have all been fitted with exhaust feed heaters, and feed pumps. Old Westinghouse air pumps have been used, with their air-cylinders replaced by water cylinders in conjunction

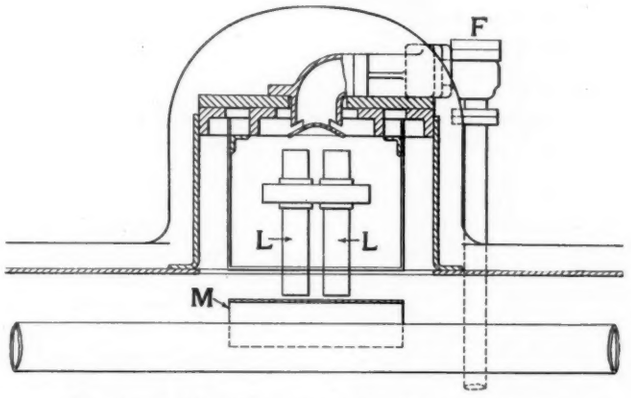


Fig. 9—Feed Dome for Feed Water Delivery

with a suction chamber. In the meantime, for the remaining 11 superheated compound locomotives feed heaters of the Knorr pattern have been ordered.

It has been found that the saving from feed heating on locomotives traveling chiefly on lines with alternately rising and falling gradients is small. The feed heaters are only suited for long sections which are run under steam.

There are in all up to the present 21 locomotives already provided with feed heaters and 11 others are shortly to be fitted with them.

Development of Feed Water Heating in Germany

Locomotive feed water heating in Germany is now as common as superheating in the United States. It is estimated that there are over 10,000 locomotives so equipped. It is not an after-the-war development there, for as early as 1909 the German railways began investigations and installations on a large scale were made soon after that. The Knorr system was adopted as standard and by the end of 1912 about 3,000 heaters were installed. At the present time there are well over 10,000 in operation and they are being applied at the rate of 2,000 a year. All new locomotives are equipped with this device and many old locomotives. With coal costing 200 marks now, as against a price of 12.5 marks before the war, it is estimated that the heaters pay for themselves through the economies effected in less than one year.

The only test data available in regard to this system of feed water heating are the results of tests made in 1913 on a passenger locomotive (Type 2-B) over a distance of 91 miles between Grunewald, just outside of Berlin, and Gusten. Three tests were made, one without the heater—Test A—one with the heater—Test B—under the same conditions as test A, and the third—Test C—with the heater and a heavier train. During test C two more stops were made than in tests A and B, but notwithstanding this fact the running time of test C was less than either tests A or B. The following table gives a summary of the results of these tests:

	Test A	Test B	Test C	Percentage difference B over A	Percentage difference C over A
Feed water heater.....	No	Yes	Yes	...	....
Running time (min.).....	129	131	125	1.5	—3.1
Train loads (tons).....	348	348	353	...	1.4
Coal consumption (lb.)...	5,672	4,300	5,400	—24.3	—4.8
Ton-miles per lb. of coal..	5.59	7.37	5.95	31.8	6.4
Water consumption (lb.).	31,000	31,900	36,100	2.9	16.4
Evaporation	5.45	7.42	6.68	36.1	22.6
Coal per sq. ft. of Grate area per hr. (lb.).....	108.5	80.9	106.5	—25.4	—1.8

It will be observed that there is a decided increase in the efficiency of the Locomotive in Test B over that in Test A, although the same load was hauled. Test C indicates that even a heavier load can be hauled when the feed water heater is used, with a decrease in fuel consumption and an increase in evaporative efficiency, than when the heater is not used.

The service rendered by the heaters has done much to relieve the severe locomotive shortage the German railways experienced after the war. In a paper before the Verein Deutscher Machinen-Ingenieure in December, 1912, Gustav Hammer, who is now the chief locomotive engineer of the Prussian-Hessian System, said that the principal reasons for the rapid introduction of feed water heating by exhaust steam are the greater economy obtained by the saving of coal and the increase of efficiency without the weight of the engines being increased much. The greatest economy in coal is naturally obtained with engines having the highest steam consumption and such engines cause a heavy strain on the boiler. The economical results obtained are not only due to the fact that a large amount of the heat from the exhaust steam is reclaimed, but also because it reduces the rate at which the fuel is burned on the grate. Both of these factors increase efficiency of the boiler. According to the conditions of the traffic the saving of coal varies, but, on an average, it may at least be 10 per cent.

Practical Advantages Demonstrated in Germany

More important still is the increase of the efficiency of the engine as a whole. If the friction weight and the efficiency of the machine are sufficient and only that of the boiler fails, this can be quite considerably increased by feed water heating. This is especially important for lines the permanent way and bridges of which do not allow a special increase of wheel loads. The tests of the Royal Railway Central Office, which were very thorough, have shown increases of the efficiency of the boilers of 20 per cent and more, in a way that cannot be disproved. In particular, these tests have shown that, with superheated steam engines, under otherwise identical circumstances, the production of steam can be increased from 12.5 lb. to 15.4 lb. per sq. ft. per hour by exhaust steam heating.

The preservation of the boiler is to be considered as a further very great advantage of the feed water heating. This preservation is, first of all, brought about by the smaller heating surface required with the same efficiency in comparison with the ordinary engine as about 1/6 of the heat contained in the exhaust steam is regained. It further results from the difference in the feeding of the boiler as well. When using the heater, the supply of feed water must be adapted to the consumption as exactly as possible. It is not an intermittent feeding, but a continuous one by the steam feed water pump, which can be adjusted very easily, and within any limits. It is not the same with the injector.

Furthermore, the boiler is supplied with water at a lower temperature with the injector than with the heater. The boilers properly fed with heated water must be considerably better and have a greater life than those fed with injectors only.

Status of Intrastate Advanced Rate Proceedings

WASHINGTON, D. C.

THE FOLLOWING compilation, showing the status of the proceedings before the various state railroad or public utility commissions on the applications of the railroads to put into effect on intrastate traffic the percentages of increase in freight and passenger rates recently authorized by the Interstate Commerce Commission as to interstate traffic, has been prepared by John E. Benton, solicitor of the National Association of Railway and Utilities Commissioners, for distribution among the state commissions, among whom there is naturally a great deal of interest to learn the final decisions of other commissions than their own. He has sent out an inquiry for this purpose to each commission. Sufficient time has not elapsed to permit the receipt of replies from all, but a considerable number have been received and from these and other sources of information he has made the summary statement, which will be supplemented in a later bulletin.

California. Hearings in progress. Consideration being expedited in every way. Commission has declined to receive evidence as to particular rates, which are held matters for adjustment after the commission makes its order, if a percentage increase is granted. A final decision is expected at an early date.

Georgia. The commission has called a conference for August 17 in reference to procedure and action to be taken by the commission on the proposed advance, at which carriers, the public, and commissioners of neighboring states have been invited to be present.

Idaho. Hearing to begin August 19.

Illinois. On August 11 the commission authorized intrastate freight rates to be increased 33 1/3 per cent and excess baggage rates 20 per cent, effective September 1, but denied all passenger fare increases under state two-cent fare law. (The foregoing facts are obtained from the press.) Illinois is partly in Official, partly in Southern, and partly in Western Territory. The increase allowed is undoubtedly a uniform increase applicable throughout the state, and intended to average the varying percentages allowed in the three territories by the Interstate Commerce Commission.

Indiana. Hearing to begin August 23.

Iowa. Understood hearing has been completed; also that commission has indicated doubt of its authority to authorize increase in statutory passenger rates.

Louisiana. Commission is now considering carriers' applications for advances in intrastate freight and passenger rates, fares and charges, and will probably render a decision on the applications in the near future.

Maryland. On August 12 the commission entered an order in part as follows: "WHEREAS, the Interstate Commerce Commission after full investigation and exhaustive hearing and argument by counsel having on the 29th day of July, 1920, filed its report and entered its order in Docket No. Ex Parte 74, authorizing and permitting carriers . . . to increase the freight rates and passenger fares of said carriers on interstate traffic in the amounts set forth in said commission's report and order, . . . IT IS, THEREFORE ORDERED: That permission be and is hereby given to all common carriers . . . to file and publish upon not less than five days' notice to the commission and the public, tariffs or supplements, either particular or blanket, applying the same percentage increase in all Maryland intrastate class and commodity freight rates, miscellaneous transportation charges, passenger fares, excess baggage rates, Pullman car charges, and milk rates, to the same extent and under the same conditions as authorized by the Interstate Commerce Commission upon interstate traffic by its report and order aforesaid."

Michigan. Under Michigan law, rates become effective on 10 days' notice, unless suspended. Carriers have filed tariffs, effective August 26, making the same percentage increase in freight and passenger rates as have been allowed by the I. C. C. These will not be suspended by the commission, but are subject to later investigation upon complaint or on motion of the commission.

Minnesota. Understood hearing is in progress.

Mississippi. Hearing to begin August 26.

Montana. Commission has approved carriers' application to the extent of proposed increases in rates on intrastate freight traffic and for switching and special services, but is understood not to have acted yet on proposed passenger fare increases.

Nevada. Hearing to begin August 16. It is understood that commission has tentatively indicated indisposition to advance passenger fares now on the basis of 4 cents or more, also that Nevada law does not permit commission to authorize horizontal increases in freight rates, but requires it to prescribe rates fixed on the basis of reasonableness to the public as well as of fair return to carriers.

New Hampshire. August 11 the commission made an order in part as follows: "It appearing that the conditions now existing which called for and necessitated an advance in interstate rates, apply equally to intrastate rates in New Hampshire, and hence, that it is just and equitable that the said advances in rates be filed effective simultaneously upon interstate and intrastate traffic, it is ordered, that said petitioners be and hereby are authorized to file effective on less than statutory notice not less than five days after filing, supplementary tariffs applicable upon intrastate traffic in New Hampshire in form and of effect as provided for and permitted upon interstate traffic under Interstate Commerce Commission Special Permission No. 50,340, issued August 5, 1920."

New Jersey. The law of New Jersey does not require railroad rates to be approved by the commission before they become effective, but does give the commission authority to suspend proposed new rates pending investigation of justice and reasonableness. The commission has called a conference for August 17 for consideration of proposed intrastate rate increases, at which carriers and the public will be represented.

New Mexico. Hearing to begin August 17. Commission understood to have indicated tentatively disposition to authorize freight increases corresponding to those authorized by I. C. C.; also like corresponding passenger fare increases where rates not now in excess of 3 cents, but not where rates do exceed 3 cents.

New York (Second District). Hearing to begin August 17. New York has a three-cent passenger fare law applicable on nearly all lines except the New York Central between Albany and Buffalo, where a two-cent rate is prescribed. It has also a two-cent mileage law. On June 15, 1920, the commission made an order requiring the New York Central to restore the two-cent rate between Albany and Buffalo, effective September 1. The carrier refused, and the commission began mandamus proceedings in the state court. The carrier sought an injunction in the United States court. The injunction was refused and later the writ of mandamus sought by the commission was also refused.

North Dakota. Hearing in progress. Commission understood to have indicated doubt that it has authority to increase rates prescribed by statute.

American Railway Supplies in South America

Second Article of Series by Railway Age's Correspondent Deals with Chile, the Trans Andine and Argentina

By John P. Risque

THE DIVISIONS OF CHILE'S SYSTEMS are known as the Northern Longitudinal from Pintados to Pueblo Hundido. The Northern Central system runs from the latter point to Calera; the Southern Central is known as that part of the line from Calera, including Valparaiso and Santiago, to the southern terminal at Puerto Montt, including the short line on Chiloe Island. The Longitudinal is of meter gage; the Central 5 ft. 6 in. To the question as to how the Longitudinal manages to make a living under the conditions of a somewhat merciless competition waged by three regular lines of coasting steamers with an apparently unlimited number of well operated ships, almost any informed Chilean will answer that his famous Longitudinal is a strategic line and he will likely illuminate the details as to how his country can quickly and easily transport troops to points all along its vulnerable coast in the event of unpleasantness with a neighbor.

Paying traffic is said to exist between Pueblo Hundido and Baquedano and between the latter point and Pintados. North of Pueblo Hundido branch lines from the interior to the coast do a good business in the hauling of nitrate from the respective fields on the lines. Almost everybody's hand seems to be evident in the display of physical equipment throughout the Chilean systems—French, German, English and American rolling stock, European station layouts; standardization seems most remote. But the former shortcoming cheers the heart of the American; he senses a fair field and no favors—and the field is big.

Just at the present time this frontier republic's ability to buy has been enhanced by the revival of a world's demand for her breadwinner, nitrate. The production of this mineral was twice as great in January, 1920, as in March, 1919, and was in fact the largest amount shipped in any single month's history of the industry. The first sight of 5-ft. 6-in. gage track will bring the average inquisitive American to a point of sneaking in underneath and between all kinds of cars in order to familiarize himself with the reasons and alleged advantages of such a wide roadbed. When he emerges to face a Ten-wheel passenger engine with gay red driving wheels and an elaborate trimming of brass all around, it would be well to make a note of the lesson; the proud array of a Chilean's passenger locomotive is considered important.

Cars on the wide gage include all kinds and makes. There are four and eight wheelers, both in wood and steel, with chain and hook couplers. Passenger cars follow our own in style and design and most of them seem to have been manufactured in the United States. Some have hooks and chains and the newer equipment has automatic couplers and West-

Retiro Station of the Central Argentine Railway, Central Cordova Railway Station Adjoining It on the Right and the Buenos Ayres & Pacific Railway Station Adjoining That on Extreme Right. British Tower (a Present to the City of Buenos Ayres) in the Foreground

inghouse air brakes. Tracks along the main lines are well ballasted and well kept, interiors of cars are clean but exteriors universally proclaim a shortage of paint or its application.

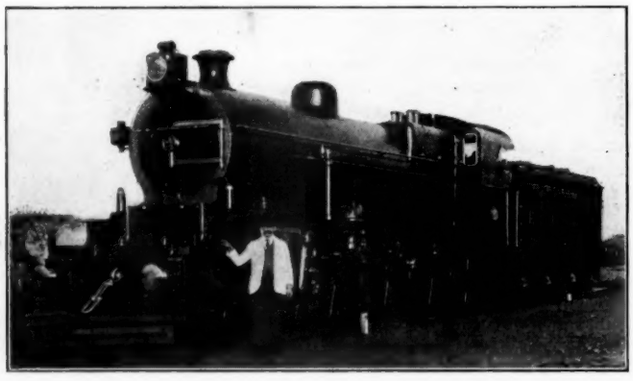
Coal from her own mines constitutes Chile's railroad fuel. San Bernardo, a few miles from Santiago, the capital, contains the recently located hopes of the repairers of Chile's rolling stock. The new plant is immense and its equipment—American throughout—has been planned to take care of the country's entire needs in this direction.

The loud clapping of a brakeman's hands at a way station on the main line is acknowledged by a shrill note from the conductor's whistle. If the engineer hears it, he will calmly light a cigarette, offer one to the fireman, climb aboard and make acknowledgement with two tedious toots of his locomotive's overworked whistle. Everybody seems ready to go; but a hack drives up and somebody of some evident importance bustles out and the three-cornered signaling performance goes the rounds once again—and they are off, providing nobody else shows up. Trains run well when they once get started; and if they happen to be late, the passenger may instinctively cling to the seat as he wonders what are the speed limits on a wide gage track.

After arrival at Llai-Llai, a short distance from Santiago on the main line from Valparaiso, the passenger will travel a branch line, also of wide gage, to Los Andes, a Chilean station a few miles inland near the foot of the Andes. The night is spent at this point and the following morning the American resumes his journey again in the care of his most active and determined South American competitor, the Argentina Englishman.

Argentina

The Transandine railroad is British up one side and down the other, partly rack-railed and meter gage all the way to Mendoza, its terminal in the foot-hills of Argentina. A passenger's interest in the miniature equipment and German combination rack and rail engines resembling tiny Mallets,



One of the Finest Locomotives in South America and Typical in Construction. This 4-6-2 Hauls the Central Argentine's Fastest Heavy Passenger Trains. Engineer Sabio in Foreground, the First to Drive the "Rapido"

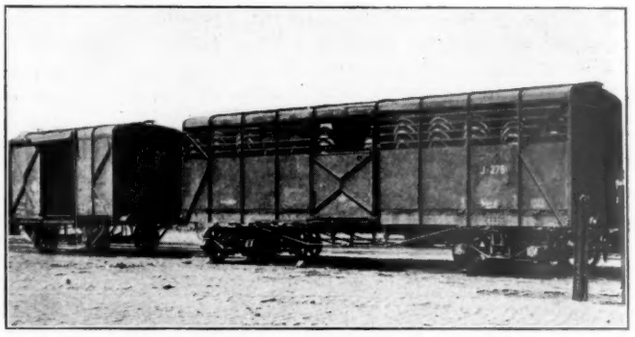
will be divided with the scenery, which, if he had not traveled already to the roof of the world in Peru, would prove a spellbinder. Like as not, however, he will be busy wondering how he is going to survive the ascent to the Cunbre tunnel, the top of the divide, without a struggle with soroche.

Emerging from the tiny Transandine car with its painfully hard seats, he again enters Britain—only more so—and will ride on English rails almost as straight as a string for 24 hours, all the way to the greatest city in South America, that stronghold of British investments, Buenos Aires, the capital of the Argentine. If he doesn't leave there on a ship, he will also leave on English rails; if he travels to the country, he will do the same.

En route to visit the little Uruguay neighbor across the river, he will find Britain monopolizing the transportation job in Uruguay as well as in Paraguay.

Brazil

Up in Brazil, however, he will not find the British in so strong a position from the railroad point of view as they are in the Argentine. There are, to be sure, two strong and influential British railway systems, but Brail has drawn upon other countries—notably France—for a share of the capital invested in her railroads. The Brazilians have also invested considerable quantities themselves and the Ameri-



Two Merchandise Cars, the Large One Having Been Built in France; Chilean State Railways

can railway supply man may expect to find business in Brazil that he would not find so readily available elsewhere—provided, that is, he does not make the grievous error of soliciting trade in Brazil in Spanish. The Brazilians speak Portuguese and are all mighty proud of the fact that they do. Catalogues and correspondence in Spanish under these conditions, naturally, are going to harm rather than help favorable relations.

One of the outstanding features in the Brazilian market just now is the electrification of the Paulista Railway. The line is one of those owned by Brazilian capital. It is a most progressive company in the hands of progressive men who have a liking for railway supplies American. The recent contracts placed in this country for the electrification of a most important section of its main line, point out better than anything else could the attitude of the road's officers and the possibilities in Brazil as a whole—other than, of course, on the British systems above referred to.

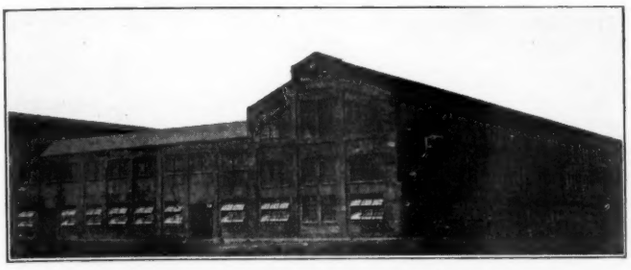
If by the time the traveller arrives in the Argentine he has not concluded that Britain is the master of transportation in South America, except in Chile and Brazil, and that he can come pretty near to making a round trip of the continent via their well managed systems, he might as well acknowledge it now. As a matter of fact, the combinations of all British rails and steamers from Panama to Punta Arenas on the West Coast and back again to the starting point via the coast of Brazil is, whether he dislikes the admission or not, the most comfortable traveling to be had in those countries.

Selling Railway Supplies in South America

The foregoing mention of the arrival in the Argentine brings forth a meaning of portentous import to the intending cultivator of the railway markets of South America. Boiled right down to a few words, it intimates that the open market encountered in Chile or Brazil exists in a meagre degree in Argentina, outside of the 3,000 miles of Argentine

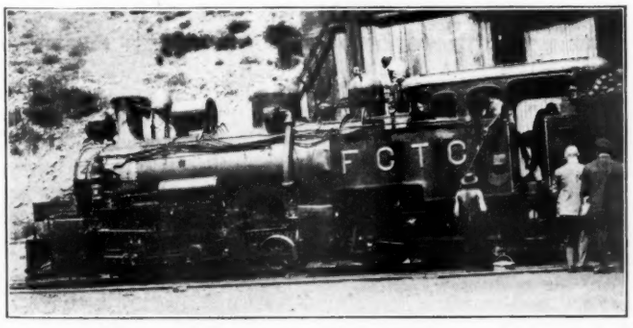
Government roads. Of the approximately 22,500 miles included in the railways of Argentina, over 13,000 are managed from London. The desire for an American railroad specialty may, by some peculiar circumstance, originate on any of the numerous English owned and managed South American railroads. And its requisition may, for the same reason, be given impetus from the local headquarters. By the time it sifts through a watchful sieve of recently aroused patriots whose minds are on the home mill and factory, that requisition will either emerge with its nationality changed or it will enter a pigeon hole, there to await the letters of explanation from the executive who sent it in.

There are those who persist in arguments designed to dis-



San Bernardo Repair Shops, Chilean State Railways

arm the uninformed with contentions fallaciously warped to suit their own ends. They will point with mistaken enthusiasm to the thorough American equipment on some of the English lines in Latin America, as, for instance, the Peruvian Corporation's systems or the old American moguls and the automatic couplers on the very English Antofagasta & Bolivia Railway—and other specialties of American origin elsewhere on English lines in those parts. Thus they would seek to eliminate five years of changes of sentiment on South American railroads in their hectic excitement to avoid a frank and possibly damaging statement of the truth, which is, briefly, that English railroads under post-war pressure to maintain Britain's world trade at all costs will buy in England *every time*. If they buy elsewhere, it is due either to



Borsig 0-6-6-2 Meter Gage "Saddle Tanker." The Forward Engine Is for the Rack Rail and Runs Only When Traversing It, Drivers Propelling Twin Pinions Between Frames. Rear Engine, Ordinary Rail Type. This Machine Is a Simple Engine.

an oversight, an accident or a total and hopeless pressure, due to a paralysis of their own production. Striking evidence of this gradual decline to a point of such alleged paralysis is shown by the British Board of Trade's figures on England's railway exports for the two months of January and February, 1919, compared to the same two months' exports of the following year. In 1919 they exported $3,134,357; 1920 contributed railway material exports to the amount of $16,328,369. The healthfulness of the increase was indicated merely by a trifling betterment of 429 per cent.

It is not the purpose of this article to discourage enterprise intelligently directed in its efforts to sell railway materials to English roads—its purpose is to *tell the truth;* to awake some of those who are profoundly asleep as to the real facts. It is regrettable that the British Board of Trade did not state just what proportion of that 16 million dollars' worth went to Latin America. But in the absence of the details, the reader is asked to scan between the lines and is advised to temper the character of his campaign in an unfriendly field, with due consideration of the significance of the showing.

If he fails to find this exposition sufficiently convincing, he might be reminded of the Buenos Aires Western's recent order of 50 locomotives from a British plant at a cost said to exceed by 100 per cent the price of American manufacturers, who were not even allowed to bid and whose deliveries would have beat the competitors by over a year. Or likewise by the tale of a gentleman from San Francisco, who related to the writer on the steamer from Buenos Aires to Montevideo his tiresome tramp around the former city from one railroad to another in a fruitless effort to get an order for American tubes at 5 per cent less than any competition offered. Will English railroads buy in England if they can? Why not? Think it over.

Application of Increased Freight Rates in Illinois

THE INTERSTATE COMMERCE COMMISSION has issued a supplemental report in the general rate advance case, ex parte 74, for the purpose of defining the application of the freight rate increases to Illinois territory.

Following its original report the commission was asked to indicate specifically the percentages of increase that should apply to freight rates, (1) within Illinois territory; (2) between points in Illinois territory and points in the eastern group; and (3) between points in Illinois territory and points in the western group.

The state of Illinois is so situated that it may be regarded, for transportation purposes, as partly within eastern territory and partly within western territory. Part of the state is embraced within official classification territory, and on traffic to and from the east the rates are usually governed by the official classification. On the other hand, some of the principal western railroads have their eastern termini within the state of Illinois, and on traffic to and from the west it has been the general practice to regard Illinois as being within western territory. Joint rates between that state and points west of the Mississippi River are governed by western classification. Because of these considerations, among others, the carriers have deemed it advisable to accord to the state of Illinois a basis of rates that partakes in part of the features of the eastern rate structure and in part of the features of the western rate structure.

Illinois territory embraces somewhat more than the state of Illinois proper, and for the purposes of this report, the Commission says, may be defined as follows:

All points in the state of Illinois, also points in Wisconsin on and south of the C. M. & St. P. Ry., Milwaukee to Madison, the C. & N. W. Ry. Madison to Dodgeville, and on and east of the Illinois Central, Dodgeville to the Illinois state line; also points on the west bank of the Mississippi River to which joint through rates subject to the official classification are now in effect from points in trunk line and central territories.

Upon further consideration of the record in this proceeding the commission finds that in the application of the increases authorized in its original report points in Illinois territory should be considered to be within the eastern group for the

purpose of applying the increases on intrastate traffic between points within Illinois territory; also on traffic between points in Illinois territory on the one hand and points in official classification territory east of the Indiana-Illinois state line on the other, and that an increase of 40 per cent may be made in such rates; and points within said Illinois territory should be treated as being in the western group on traffic subject to joint or single line through rates between points in said territory on the one hand and points lying within the boundaries of the western group (west or north of Illinois territory) on the other, and that an increase of 35 per cent may be made in such rates.

In its original report the Commission said, in effect, that in computing passenger fares the carriers should follow the same rule for the disposition of fractions as was approved for the publication of freight rates where stated in amounts per 100 pounds or any other unit, except as otherwise specifically provided. Its attention was later called to the fact that it has long been the custom of the carriers in constructing passenger fares to round out fractions to the next full cent. It is the commission's view that the practice heretofore observed may be applied in constructing the increased passenger fares, the surcharges for occupants of sleeping and parlor cars, and baggage charges, authorized in its original report.

Labor Also Is on Trial*

By E. E. Loomis
President, Lehigh Valley Railroad

THE RETURN OF THE RAILROADS to private control coupled with the recent rate award of the Interstate Commerce Commission has given birth to the popular idea that it is now "up to the railroad managers." It is argued that at last they have fair legislation and increased revenues, and that they must now demonstrate their fitness to handle the task before them if private operation of the railroads rather than government ownership is to be the future lot of the properties.

It may be that private control is on trial. Equally true, however, is the fact that another great element in our national life also is on trial. Not only must the railroad managers show their ability, but the men and women they employ must demonstrate their willingness to work and their right to the wages recently awarded them by the United States Railroad Labor Board.

The situation is complicated by conditions which became possible during government control. Under the United States Railroad Administration the various crafts engaged in rail road work affiliated in a closely knit organization which enabled their leaders to exercise great influence at Washington and to obtain among other things: Standardized wages and working conditions for the whole country; centralization of discipline enforcement in the hands of a board located at Washington; abolition of piece-work.

Experienced railroad managers always have opposed these ideas as contrary to efficient operation and good discipline.

In the meantime, requests for increased wages (to which practically all classes of employees were entitled because of the high cost of living) were not acted upon by the Railroad Administration but were left to the Labor Board, created under the Transportation Act. While this situation obtained, a part of the railroad workers—as a whole a body of upright American citizens of which the nation may be proud—became the prey of unscrupulous agitators. The result was the outlaw strikes of last Spring from which some roads have not as yet fully recovered.

The award of the Labor Board, generally satisfactory, has answered the one serious complaint of labor. The splendid *esprit de corps* of American railroad men, however, still staggers from the body blows it has received. Fortunately, the effect of these blows is wearing off and a sincere effort upon the part of railroad managers to build up the old-time feeling of loyalty to their lines is producing results. The Transportation Act of 1920 afforded a great help in this direction. It offered an opportunity to decentralize the railroads and place the operation of the lines in the general offices of each system rather than in Washington, restoring all of the personal initiative which goes with the realization that work consistently well done is going to result in greater opportunity for promotion and increased pay.

Union leaders oppose this, however, and are urging national agreements, the establishment of a national board of adjustment for the handling of grievances, and perpetuation of the country wide standardization of working conditions which obtained during government control. This wholesale standardization probably is convenient for the leaders but in many cases it is unfair to the rank and file of workers and experience reveals that it already has been the cause of much justified dissatisfaction. For example, in the southwest working conditions cannot be identical with those of the congested manufacturing centers of the east. Different ways of living, the variance in costs of food, fuel, clothing and shelter, and the operating methods of railroads so widely separated, must be considered if justice is to prevail. In short, wholesale standardization would strike a death-blow at the decentralization intended under the Transportation Act and the railroads would be robbed of the home rule necessary to the maintenance of efficiency and proper discipline.

A great opportunity for ambitious workmen themselves to build up morale within the rank and file would lie in the restoration of the piece-work system, the basis of shop efficiency before government control. While it prevailed the man who had energy and ability had a strong incentive to conscientious labor. It brought him increased earnings over the lazy and inefficient worker. Abandonment of piecework by the Railroad Administration placed these two men on the same plane. The incentive of the ambitious, active worker was killed—no matter how hard he strove he could earn no more than the indifferent and inefficient fellow at the next machine. Fortunately, under our American system of education, the number of ambitious workers with brains must grow, and it is unlikely they will rest content to remain on the same basis with mere time-servers. The coming of the time when they will make themselves felt in the union organizations means much to railroad efficiency.

There must be constant education to accomplish these results. The fallacies of the agitators who fatten upon discontent, the economic losses to the workers themselves through useless strikes, must be pointed out, and above all, the self-respect of the workers must be encouraged. Much of the future success of American railroads depends upon their employees and the service they perform. If the men come to realize that they can hold the friendship and interest of the shipping and traveling public by a whole-hearted spirit of co-operation under the Transportation Act, that in this path lies their road towards progress, promotion and prosperity, they will play a big part in giving our country the transportation efficiency necessary to successful commercial development.

* A statement issued in New York on August 16.

The country cannot buy right, the country cannot sell right, the country cannot live right, unless the railroads are doing their work. And under private management, with income enough to pay their way, they can. They must; they will.—New York Sun and Herald.

Increased Express Rates Are Authorized

12.5 Per Cent Instead of 25.16 Allowed, with Condition That It Shall Not Be Divided with Railroads

WASHINGTON, D. C.

AN INCREASE of 12.5 per cent in express rates was authorized by the Interstate Commerce Commission in an opinion dated August 11 but made public on August 13, which does not take into consideration the award of the Railroad Labor Board handed down a few days previously increasing the wages of express company employees by approximately $33,000,000 a year. It is estimated that the decision will increase the revenues of the express company by approximately $36,000,000, or approximately half of the amount which would be raised by the method proposed by the American Railway Express Company, which proposed increased class and commodity rates were computed to represent an average increase of 25.16 per cent of present rates. The commission holds, however, that the full amount of the 12.5 per cent increase allowed should accrue to the express company, whereas its proposal was predicated on the present contracts between the express company and the railroads under which 50.25 per cent of the gross revenues go to the railroads. The commission assumes that the railroads will join the express company in arranging, by revision of the contract or otherwise, so that the increase will go to the express company, but the decision says nothing as to the commission's approval of the proposed new contract, planned to become effective on September 1, which has been submitted to it for approval.

On August 12, before the rate decision was handed down, the express company filed with the commission a petition calling attention to the wage award, which it said would have the effect of increasing its expenses by $43,800,805, because the salaries of many of its employees in the official class will have to be increased to keep them in proper relation to the wages required to be paid by the award. It also estimated that this increase in expenses would make its yearly deficit $76,375,650, and requested the authority of the commission to file as soon as possible tariffs of increased rates on milk and cream to correspond to the 20 per cent increases on these commodities allowed the railroads. The company also asked that, after another hearing, if necessary, it should be allowed to make another application to the commission for futher increases in rates to meet the new increase in wages and it called attention to the fact that the commission's order in the railroad rate case did not take into consideration the needs of the railroads for an increase in their revenues from express. The commission in the express rate decision authorized the company to increase the rates on milk and cream to equalize with the railroad rates.

An abstract of the express rate decision which is by Chairman Clark, follows:

Report of the Commission

Early in the period of federal control of railroads the director general declined to carry out the separate contracts between the railroad and express companies under which the business was theretofore conducted; whereupon, the respondent company was incorporated and, by contract with him and as his agent, took over on July 1, 1918, the express business on the railroad lines under federal control. The four major express companies formerly operating, viz, Adams, American, Southern and Wells, Fargo & Company. in turn controlling by lease the business and property of the Great Northern, Northern, and Western express companies. exchanged for respondent's capital stock at par the property theretofore used by them in the express transportation business, estimated by the director general to be the value of approximately $30,000,000 as of November 30, 1917, together with $3,000,000 in cash for working capital. Including additions and betterments not charged to operating expenses, made between the latter date and July 1, 1918, the authorized issue of capital stock at par aggregates $34,642,109.64. On November 18, 1918, the respondent was brought under federal control, but employed by the director general as his operating agent by a supplemental contract, under which, as under the original contract, respondent was guaranteed against an operating loss. By section 209(*i*) of the transportation act, 1920, that guaranty has been extended to and including August 31, 1920. In those contracts the preceding 10-year average basis of compensation for express privileges —that is, the amount paid the railroads for providing the transportation and certain terminal facilities—was adopted, and 50.25 per cent of the gross transportation revenues have accrued for those services and facilities; but as the aggregate accruals, less deficit, were, during federal control, paid over to the director general, respondent was relieved of the cost of their apportionment among transportation lines.

The petition recites, that during the year 1919, with certain considerable reserves for payment of loss and damage claims and for other items of expense applicable to that period, respondent operated at a deficit of $22,036,352.13, with prospects for an increasing future deficit, making necessary further and considerable increases in rates in order that respondent or any successor may operate at a profit. This estimate was reduced, by revision of the figures before the close of the hearings, to $21,819,488.28. The increased class rates which respondent now desires to establish, those designed for application within, but not between, the several zones being set forth in a schedule filed of record, are not formulated with reference to the present rates, but are based upon percentage increases of the original components prescribed by us, substantially as follows: An increase of 33 1-3 per cent in the combined terminal factors in the zones other than zone 4, namely, from 45 cents to 60 cents, of which 35 cents is to represent the express-terminal and 25 cents the rail-terminal allowance; and an increase of 75 per cent in the rail transportation or haulage charge in zone 1, of 50 per cent in the other zones, of 60 per cent in the interzone haulage charges to and from zone 1, and of 50 per cent in the other interzone charges. To this is added an increase of 25 per cent in the present commodity rates in zone 1, of 10 per cent in the other zones, and of 15 per cent between zones, with the exception of rates on milk and cream. Based on the results of one day's operations, June 12, 1919, the average general increase over present rates is computed to be 25.16 per cent. On the ground that milk and cream are carried in express and railroad service in practically the same manner and under the same conditions, it is proposed to establish such rates on those commodities as may be applied by the railroads.

The following revised extract from one of respondent's exhibits tabulating the adjusted domestic operations, interstate and intrastate, from 1911 to 1919, inclusive, shows the results for 1918 and 1919:

	1918	1919
Express, domestic	$250,917,736.05	$285,887,889.38
Miscellaneous transportation revenue	55,145.26	17,516.02
Charges for transportation	$250,972 881.31	$285,905 405.40
Express privileges, Dr.	127,069,058.13	143,429,819 72
Revenue from transportation	$123,903,823.18	$142,475.585.68
Valuation charges[1]	1,269,946.92	5,191,713.33
Total operating revenue	$125,164,770.10	$147,667,299.01

Operating expenses—		
Maintenance	$6,470,439.74	$9,699,230.75
Traffic	247,488.33	244,611.35
Transportation	142,620,595.28	151,448,921.60
General	5,544,402.24	6,033,739.07
Total operating expenses	$154,882,925.59	$167,426,502.77
Net operating revenue	[2]$29,718,155.49	[2]$19,759,203.76
Uncollectible revenue	74,719.91	45,054.70
Express taxes	1,716,808.45	2,015,229.82
Operating income	[2]$31,509,683.85	[2]$21,819,488.28

[1] Excess-value charges, assessed in addition to transportation rates.
[2] Deficit.

The figures for 1918 combine the operations of the seven old companies for the first six months and of respondent for the latter half of the year, while those for 1919 are respondent's. In connection with the tabulation it appears that an allowance of $8,863,580.05 made by the government to the four major companies in December, 1918, is not included in the figures for that year. Its inclusion would reduce the deficit to $22,646,103.80. It also is explained that the transportation expenses for 1919 have been reduced $4,000,000, representing the estimated accrual in that year's accounts for loss and damage, partially to offset underaccruals during the latter half of 1918 and thereafter payable. Similar adjustments, in stated amounts, were made for the preceding two years. A further exhibit indicates that if the wage scale in effect at the close of 1919 had been in force throughout the year and it had been respondent's duty to apportion the revenues among the transportation lines the operating deficit for that year would have been $27,514,391.28.

The exhibit from which the foregoing extract is taken discloses a deficit in 1914, amounting to $2,415,773.09, with profits exceeding $6,000,000 in each of the following two years, and a deficit of $5,473,694.78 in 1917. The gross transportation revenues increased from $123,224,685.91 in 1911, with the exception of declines in 1913 and 1914, to $285,905,405.40 in 1919, while the total operating expenses increased uninterruptedly from $53,056,611.26 to $167,426,502.77 during the same period. The ratio of wages to revenue increased from 26.75 per cent in 1911 to 35.59 per cent in 1919, and concurrently the ratio of the total other expenses to revenue increased from 17.22 to 23.77 per cent In both 1918 and 1919 the increases in gross revenues were materially lower than the increases in wages and other expenses. The most striking recent increases, however, are revealed in the item of loss and damage, exhibited by respondent, after adjustment of under- and over-accruals for the last three years, as follows:

	Transportation charges	Loss and damage	Per cent
1911	$123,264,760.28	$2,088,926 99	1.6947
1912	138,855,319.55	2,591,668.74	1.8665
1913	134,238,408.12	3,053,616.44	2.2748
1914	132,104,659.87	3,061,847.93	2.3177
1915	152,808,634.78	3,117,136.75	2.0399
1916	186,161,145.90	4,828,688 21	2.5938
1917	217,909,920.96	11,831,272.27	5.4294
1918[1]	{ 123,048,631.66	17,236,427.36	14.0078
	{ 128,128,620.71	14,216,960.31	11.0959
1919	285,905,405.40	20,576,161.56	7.1968

[1] Six months' periods, ended June 30 and Dec, 31, respectively.

An exhibit restating the results of the 1919 operations, and also as modified by the inclusion of an increase of 25.16 per cent in rates, a computed income tax, and a retroactive application of the wage scale in force at the close of the year, is as follows:

	Actual	Modified
Express, domestic	$285,887,889.38	$357,817,282.35
Miscellaneous transportation revenue	17,516.02	17,516.02
Charge for transportation	$285,905,405.40	$357,834,798.37
Express privilege, Dr.	143,429,819.72	179,516,930.55
Revenue from transportation	$142,475,585.68	$178,317,867.82
Valuation charges	5,191,713.33	5,191,713.33
Total operating revenue	$147,667,299.01	$183,509,581.15
Total operating expenses, other than commissions, chargeable to domestic transportation operations	$155,360,270.57	$161,055,176.57
Commissions	12,036,232.20	15,102,093.22
Uncollectible revenue	45,054.70	45 051.70
Taxes	2,015,229.82	3,206,742.71
Total	$169,486,787.29	$179,409,070.20
Net operating income	[1]$21,819,488.28	$4,100,510.95

[1] Deficit.

The results exhibited in the right-hand column are based upon 1919 as approximating an index for the period commencing September 1, 1920, when all the burdens of operation must be borne by respondent, and are contingent upon the application of the proposed schedules to interstate and intrastate business. The additional gross revenue would be $71,929,392.97. The item of $161,055,176.57, covering prospective total operating expenses other than commissions, includes $5,694,906, as representing the application of the above-mentioned wage scale for the entire year, together with the estimated cost, $1,500,000, of apportioning the express privileges in the course of private operation. Included in the item of taxes is a computed income tax of $912,221.94, not chargeable to operating expenses but taken into account to indicate the final result. At the same time, a further adjustment as to Sunday and holiday wage scales, effective in February, 1920, is estimated to add $1,900,000 to the pay roll for this year. On the other hand, respondent estimates, on the strength of the business of the test day, June 12, 1919, that proposed changes in certain items of its classification now pending in No. 11416, *Express Classification*, 1920, would, if approved in full, afford a further annual gross revenue of $4,488,857.30.

Detailed evidence is submitted showing the marked increase in prices since 1916 of numerous articles purchased and used in the express business and concerning extensive wage readjustments and increases in 1918 and 1919. Further wage demands, estimated to aggregate $73,835,679, now pending before the United States Railroad Board, are not taken into account in the proposed rate increase. Beyond the matter of additional revenue necessary to afford respondent living profits, the witnesses review in some detail the imperative need of materially augmented equipment and facilities of various kinds, estimated to involve an expenditure upward of $31,000,000, for the procurement of which respondent must have sufficient revenue to establish its credit.

While there has been little expressed opposition to such rate increases as may be necessary to enable respondent to maintain an efficient express service, there has been a very general objection to the proposed increase in so far as, by virtue of the 50.25 per cent basis of compensation for express privileges, it entails the assessment against shippers of practically two dollars for every dollar of additional revenue required to meet respondent's needs, notwithstanding that the railroad lines have asked for no further revenue from this source. Further objection has been made to an increase predicted in part upon a loss and damage account of such magnitude as that disclosed for 1919. There is also opposition to the schedule for zones 2, 3, and 4 on the ground that, because of changed conditions since the original schedule was prescribed, the rates proposed for application within those zones are relatively too high. Exceptional treatment is asked for certain commodities, later referred to.

As contributing to the growing loss and damage account, respondent cites an increase in the average claim payments from about $5 in 1915 to $14.20 in 1919, attributed to the increased cost of the commodities involved; a more zealous prosecution of claims by shippers; the substantial expansion of the volume of traffic, including much that should move by freight; the demoralization of the express service through the loss of experienced operatives to more lucrative employment and their replacement by less efficient men; insufficient working forces; inadequate terminal facilities; and the necessary use of considerable box-car equipment, with the incidental slower service and added difficulties in the matters of stowage and policing. Respondent's manager of its

loss and damage department, while testifying at length concerning steps taken to better the general situation, is without hope of a material reduction in loss and damage until suitable car equipment and adequate terminal facilities can be procured. The item of "loss" is indicated by a classified exhibit of claim payments in 1919 to have constituted approximately seven-ninths of the total payments. Some of the protestants ascribe its swollen proportions largely to the absence, in the case of shipments not valued over $5 per pound, of the former man-to-man check from point of origin to destination, and generally it is insisted that the 1919 item should not be recognized in full in the proposed rate increase. In fairness, however, it should be observed that the ascending ratio of loss and damage to transportation charges disclosed in the foregoing table is misleading, in that express rates have not increased during that period in proportion to the increased cost of the commodities lost and damaged. On the other hand, the contrast between the abruptly magnified figures for the war year 1918 and those for 1919 affords little indication of definite further reductions to follow. It is explained for respondent that the former man-to-man check gradually became incompatible with the dispatch of the steadily increasing volume of traffic; and while the installation, July 1, 1920, or as rapidly thereafter as practicable, of a new checking system is designed to afford a more complete record of shipments and thus obviate the more serious defects of the present system, it is under trial as an experiment, the results of which are conjectural. Based upon an exhibit purporting to show claim payments by respondent for 20 months beginning July 1, 1918, a maximum of $13,000,000 or not to exceed 4 per cent of the revenues is suggested by certain protestants as appropriate in determining respondent's needs; but we are unable to reconcile the figures with those submitted by respondent. Nevertheless, although the item is in the case, with no evidence of a measurable trend by which a definite lower figure may be taken for present purposes, a consistent bending of every energy and resource toward the elimination of avoidable loss and damage should be productive of substantial results.

The record falls far short of the essential data upon which to found a comprehensive and definite revision of rates in and between the several zones; and, paraphrasing our comment in the original case on rehearing, 35, I. C. C., 3, 13, such relief as respondent requires should be accorded without the results of a general investigation that necessarily would consume a considerable period of time.

Conceding, on the one hand, that the record tends to show that there should be a somewhat greater increase in zone 1 than elsewhere, over and above that which resulted from the advance of three scale numbers on January 1, 1919, and, on the other hand, that the proposed greater increase in the basic haulage charge in that zone would accomplish something toward that end, one substantial objection to the proposed basis would be the disproportionate increases in the long-haul rates. Whatever may be the precise facts as to relative terminal expenses, it is admitted that the short-haul traffic is not proportionately as remunerative as it should be. The contemplated increases in the long-haul rates would be materially modified by a percentage increase of present rates, as has been urged, although such situations as are present in the cited interzone rates from lower to higher rated zones would be somewhat magnified. Mindful of imperfections in both plans, we are confronted with the necessity of reaching a conclusion upon the record made, leaving future practical results to determine the occasion for further action.

The record abundantly establishes respondent's need of additional revenues to enable it to meet the mounting costs of operation and maintain an efficient express service, and the question becomes one of appropriate ways and means. Assuming that the test day was fairly representative of the year's average, although criticized of record as a relatively light day of the week, Thursday, in a light month as to certain classes of traffic, the additional gross revenues estimated to flow from the proposed rates, designed to include the 50.25 per cent apportionments of express privileges, represent an average increase of 25.16 per cent of the present rates, respondent's share of which would very closely approximate an average increase of 12.5 per cent. We have heretofore commented upon the desirability of some revision of the contract bases hitherto obtaining whereby additional revenues needed solely for the express service could be obtained without a double assessment upon shippers. *Increases in Express Rates, supra.* We pass over certain evidence submitted by the committee for the state commissions in zone 3 embodying a proposed substitute of compensation and their contention that we have power to prescribe it.

In what we here conclude we are not to be understood as governed by the view that an increase in express rates should consistently be restricted to the necessities of the express service alone, regardless of the railroad facilities and services devoted to the traffic, but merely that at this time and in the circumstances the additional burdens to be laid upon shippers should be kept within bounds as far as possible without sacrificing the just interests of the respective carriers. These considerations are emphasized by the pendency of further wage demands by respondent's employees aggregating almost $74,000,000, or more than enough to wipe out entirely the additional gross revenues estimated to flow from the proposed increased rates; and as the outcome of those demands can not be anticipated, the matter must be left to be dealt with as the results require.

As before stated, shippers of certain commodities oppose the application of the proposed increased rates, principally upon the ground that by reason of narrow margins of profit any substantially increased transportation costs would restrict the movement of the traffic. The particular commodities are bread and cake, ice cream, frozen fish, live fish, and laundry. Detailed testimony in amplification of the objections has been submitted. The bakers and ice cream manufacturers urge that with the restriction of shipments local and less wholesome products would replace the output of their specialized plants, and for all the foodstuffs the further objection is made that the cost of living would be enhanced accordingly. In addition to small profits on laundry handled by express the double movement of the soiled and laundered goods is cited as warranting special consideration. To some extent the protests have arisen from misconceptions of the degree of the proposed increases. At all events the protests are based upon commercial grounds, and no sufficient transportation or other compelling reason is advanced to persuade us that these articles should not share in the increased burdens necessary to be laid upon shippers generally.

Manufacturers of rubber tires and inner tubes ask for the establishment of carload commodity rates, to apply only when the articles are loaded and unloaded by the shipper, enough lower than the less-than-carload or any-quantity rates to compensate for the absence of a pick-up and delivery service in such cases. Coupled with a showing of the volume of inbound carload shipments of fabric and outbound shipments of tires and tubes, principally by express because of pressing demands, the opinion is expressed that with the restoration of normal freight service the carload express business will substantially decline. This opinion is an echo of the generally voiced criticism that respondent has permitted its express service to be broken down by the acceptance of volumes of traffic that should move by freight. As the expressed willingness of one of the principal manufacturers to load and unload is conditioned upon the placement of the cars at its plant, the reduced rates sought would make no allowance for the in-and-out switching. The record does not warrant a prescription of special carload rates.

Much has been said in the record concerning the encroachments upon the express service by what is spoken of as freight traffic, although no clear line of demarcation is pointed out. Admittedly the service has been subjected to burdens it ought not to bear, but here again the views of the shippers are not in harmony. Some recommend a limit of weight per shipment, as 200 pounds, while others sharply protest against any restriction that would prevent emergency shipments by express; for example, machinery necessary to avoid the closing down of plants, although in general properly the subject of transportation by freight. A suggestion from one source that such emergencies be provided for under a permit system is objected to from another. While what have been spoken of as "penalty rates" might tend to solve the problem, in this further particular the record is deficient, both as to a basis for their construction and as to classification of traffic for their application.

Upon all the facts of record we find that the proposed increased rates have not been justified. If granted as proposed, one-half of the additional gross revenue would accrue to the carriers over whose lines the respondent operates, and this record is barren of evidence showing need or warrant for augmentation of the revenues of carriers other than respondent.

We further find that an increase in the present rates of 12.5 per cent has been justified, subject to the exceptions below made as to rates on milk and cream.

We think that the full amount of these increases should accrue to respondent and we assume that the other carriers will join respondent in so arranging, by revision of contracts or agreements or in some other manner.

Under the circumstances no order will be entered, and in view of the approach of the end of the guaranty period respondent will be permitted to make such increased rates effective upon not less than one day's notice in the manner provided by the interstate commerce act. Its local and joint schedule of first and second class rates should be reissued, conformably to the foregoing finding, the second-class rates not to exceed 75 per cent of the corresponding first-class rates. For the time being respondent is hereby authorized to file a special blanket supplement or supplements to its current commodity tariffs to make effective the approved increased commodity rates, but within 90 days after the above effective date, unless otherwise authorized, those tariffs shall be reissued. In computing the increased rates fractions of less than one-half cent shall be discarded and fractions of one-half cent or more shall be treated as 1 cent, except that in computing increased commodity rates which apply per pound fractions of a cent may be retained or discarded, but shall not be treated in any instance as 1 cent. Rates on milk and cream may be made equal to those contemporaneously applied by the railroad lines between the same points. If there are no competing railroad rates between the same points, respondent's rates may be increased 12.5 per cent.

As soon as may be, the increased rates shall be conformed to the requirements of the fourth section of the act, so that, where rates are applied by circuitous lines or routes no higher than the rates by direct lines or routes between points common to such circuitous and direct lines or routes, higher rates shall not apply from or to intermediate points on the circuitous lines or routes for distances longer than those of the respective direct lines or routes between the common points.

There is now pending before us an application under section 5 of the interstate commerce act, requesting authorization for a continuance of the consolidation of the express companies into respondent. There has also been submitted to us for approval a proposed new contract to be entered into between respondent and carriers over whose lines it operates. Nothing said herein is to be taken as prejudicing or forecasting the decision in either of these proceedings.

This report does not take into consideration the award of the United States Railroad Labor Board, handed down as this goes to press, awarding increased wages to respondent's employees, and, as to which, respondent has suggested the necessity for a further application for increased rates, after study and analysis of the award.

Railroads Need Cash

WASHINGTON, D. C.

THE TOTAL COMPENSATION paid to the railroads by the Railroad Administration up to July 1 on account of their rental for the use of their property during federal control was $1,365,870,037, of which $1,335,523,268 was paid by March 1, when the roads were relinquished, $13,558,350 in June, and $16,788,419 in July. The total standard return for the 26 months of federal control amounts to about $1,950,000,000, so that about $585,000,000 of the rental was still unpaid on July 1. A considerable part of this is not expected to be paid, but is being offset against the expenditures made by the government for additions and betterments and equipment for the account of the companies during federal control. On March 1 it was estimated that under the terms of the standard contracts approximately $495,000,000 could be so deducted. In addition to this however, the Railroad Administration has withheld some of the rental due the companies, after allowing them what it considered absolutely necessary for fixed charges and other corporate expenses, pending a final settlement of the accounts between the railroads and the government, in order to protect itself by retaining possession of some of the money which it claims the railroads owe it.

Some large sums will also be due the railroad companies after September 1, when the six months' guaranty period provided by the transportation act expires. The guaranty is for one-half of the amount of the standard return, and while it is reduced somewhat by the roads that, like the Southern Railway, did not accept the guaranty provisions, it is somewhere in the neighborhood of $450,000,000. Up to July 1 the roads as a whole had earned practically none of this and while July and August may be expected to show somewhat more favorable results, the most the roads could possibly earn in those two months would fall far short of paying the retroactive wage increase, which from May 1 to September 1 will amount to about $200,000,000. It is roughly estimated, therefore, that the government will owe the roads after Sept. 1 something like $500,000,000 to $600,000,000 on account of its guaranty, less the amount of the advances which are being made from time to time. Many of the roads, particularly the eastern roads, have not been earning operating expenses, and very few could pay the back wages which will accrue by September 1 without an advance on account of the guaranty, to say nothing of the current interest and dividends. The advances are made by the Treasury Department, on certificates furnished by the Interstate Commerce Commission, after the roads have executed contracts and furnished security in accordance with regulations prescribed by the Treasury Department.

The Interstate Commerce Commission has received some 200 applications for advances on account of guaranty and has issued 163 certificates to about 120 or 130 railroads, amounting to approximately $100,000,000. Some roads have received more than one certificate. The first applications were for cash to meet interest and dividend payments and in some cases operating expenses, but recently there have been many for meeting the retroactive wage payments.

The guaranty accounts and the compensation accounts covering the 26 months of federal control are handled entirely separately, as the Railroad Administration has an appropriation of its own for the settlement of its accounts.

A Review of the Transportation Conditions

Reduction in Accumulation of Freight Cars—Car Shortage Increasing Because of Crop Movement

WASHINGTON, D. C.

A TOTAL OF 914,128 CARS of commercial freight was loaded on the railroads of the United States during the week ended July 31, according to reports received by the Commission on Car Service, as compared with 915,972 for the previous week and 914,297 for the corresponding week of 1919. The Southern district continues to show an increase as compared with 1918, as it has for the past three weeks. The summary compiled by the Commission on Car Service follows:

REVENUE FREIGHT LOADED AND RECEIVED FROM CONNECTIONS

Summary—All Districts; Comparison of Totals This Year, Last Year, Two Years Ago

Districts	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Mdse. L. C. L.	Miscellaneous	Total revenue freight loaded: This year 1920	Total revenue freight loaded: Corresponding year 1919	Total revenue freight loaded: Corresponding year 1918	Received from connections: This year 1920	Received from connections: Corresponding year 1919	Received from connections: Corresponding year 1918
Eastern	1920	6,545	2,533	53,734	3,637	8 724	10,036	33,136	103,431	221,796	.....	.....	267,977	.....	.....
	1919	9,714	2,190	48,833	3,198	7,491	8,114	18,275	118,190	....	216,005	232,506	....	230,044	248,510
Allegheny	1920	2,770	3,377	59,603	4,781	3,976	10,958	34,416	68,170	188,051	....	....	135,709	....	....
	1919	4,715	2,885	54,874	3,117	4,619	13,662	37,387	73,695	....	194,954	228,333	....	142,328	195,148
Pocahontas	1920	252	161	23,964	730	2,113	187	3,940	7,502	38,849	....	....	20,166	....	....
	1919	396	178	21,240	497	2,095	252	114	11,178	....	35,950	41,973	....	18,259	23,416
Southern	1920	4,399	1,990	22,605	4,620	17,540	3,158	30,975	41,295	126,582	....	....	81,196	....	....
	1919	4.439	2,026	22,140	187	18,098	2,267	19,654	47,394	....	116,205	121,921	....	64,646	69,935
Northwestern	1920	8,090	7,034	8,939	1,369	17,663	45,922	28,945	39,101	157,063	....	....	61,317	....	....
	1919	11,024	8,331	9 076	1,644	17,500	44,122	21,408	46,058	....	159,163	160,414	....	61,328	71,244
Central Western	1920	13,263	8,244	11,506	488	6,504	3,298	32,527	44,591	120,421	....	....	67,985	....	....
	1919	17,743	9,441	19,662	295	5,931	3,024	23,595	47,509	....	127,200	127,536	....	67,866	61,555
Southwestern	1920	4,521	3,149	3,943	194	8,233	338	17,225	23,763	61,366	....	....	57,193	....	....
	1919	9,084	2,891	5,682	171	8,138	396	12,843	25,615	....	64,820	62,239	....	49 413	43,438
Total all roads	1920	39,840	26,488	194,294	15,819	64,753	73,917	181,164	327,853	914,128	....	....	691,543	....	....
	1919	57,115	27,942	181,507	9,109	63,872	71,837	133,276	369,639	....	914,297	....	....	633,844	....
	1918	....	....	....	....	....	....	....	....	....	....	974,922	....	....	713,246
Increase compared..	1919	....	....	2,787	6,710	881	2 080	47,888	....	....	....	....	57,659	....	....
Decrease compared..	1919	17,275	1,454	....	....	....	....	....	41,786	169	....	....	....	....	....
Increase compared..	1918	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Decrease compared..	1918	....	....	....	....	....	....	....	....	60,794	....	....	21,703	....	....

For the five weeks ending July 31 the railroads have loaded a total of 4,351,363 cars, as compared with a total of 4,279,343 for July, 1919.

The accumulations of freight cars in excess of current movement continue to show a reduction until the total is now less than it has been at any time this year with one exception. For the week ending August 6 the total was 84,949, as compared with 90,571 the week before. The reduction is brought about mainly by the decrease in the number of cars held for local destinations from 23,765 to 16,612.

The car shortage (deferred car requisitions), which have been showing decreases in recent weeks, are again increasing, in spite of the improvement in transportation conditions, as the demand for cars increases with the movement of the crops and the approach of the fall season. For the week ending August 1 the average was 132,370 for the United States and Canada, or 125,810 for the United States alone, of which 45,059 were coal cars.

Speeding Up Average Freight Car Movement

Reports received by the Commission Car Service showing the average miles per car per day, which the railroad executives on July 16 resolved to increase to 30, represent a marked improvement during the month of June, for which the complete reports have now been compiled. The average for June was 25.1, as compared with 21.4 for June, 1919. For May the average was 24.1 as compared with 20.1 in 1919; for April the average was 19.7 as compared with 19.9; for March it was 23.4 as compared with 19. All of the districts show an improvement for June. In the Eastern district the average was 22.5 as compared with 22.1 For the Allegheny district it was 17 as against 17.5; for the Pocahontas district, 41.3 as against 31.3; for the Southern district, 25.8 as against 21.8; for the Northwestern district, 25.9 as against 23.8; for the Central Western district, 29.9 as against 22.8; for the Southwestern district 25.8 as against 16.7. Thirty roads show an average mileage per car per day in excess of 30.

The semi-monthly bulletin of percentages of freight cars on line to ownership, as of August 1, issued by the Commission on Car Service, shows that the roads in the Eastern district on that date had 104.9 per cent, the Allegheny district 105.6 per cent, the Pocahontas district 71.6 per cent, the Southern district, 90.3 per cent, Northwestern district, 97.8 per cent, Central Western district, 95.7 per cent and Southwestern district 100.8 per cent. The Western district as a whole had 97.5 per cent.

Cars for Grain Loading

Shippers and others who have made inquiries by letter as to what the Interstate Commerce Commission proposes to do, if anything, to improve the car supply for grain loading in the Northwest, which was the subject of a recent hearing before the commission, are receiving copies of a statement prepared by the Bureau of Service of the commission, outlining the car situation as of August 11 as it affects the Northwest and what has already been done by the commission and by the Commission on Car Service, as follows:

"In view of the fact that this commission is receiving a great number of communications with respect to the car situation in the Northwest, it is believed that it will be helpful to set forth the facts as they are at present, in some detail.

"It should be understood that the commission is fully impressed with the great importance of providing an adequate supply of suitable cars in which to move the grain crop and appreciates the responsibility attaching to it in connection therewith; including the financial aspect. In fact the entire grain situation has been receiving constant attention for some time.

"It is, of course, fully understood that the demand for cars of all kinds and in all parts of the country at this time

is greatly in excess of the supply, making it necessary for all available equipment to be prorated among the various shippers, according to their respective needs. In this distribution and relocation of equipment first consideration is very properly given to the movement of grain, live stock, perishable freight and food products.

"The box cars of the country are badly scattered and in the various orders which have been issued requiring the movement of cars to the west, it has been specified that cars belonging to the roads to which they were being relocated, or which belong to roads in the same territory and which are best suited to the traffic, should be given preference in filling such orders. Perhaps the extent to which the box cars are scattered will be better understood from the following figures:

Percentage of home box cars on home roads by districts for Class I roads, July 15, 1920:

Eastern	12.6
Allegheny	19.3
Pocohontas	10.1
Southern	12.8
Northwestern	17.7
Central Western	13.8
Southwestern	13.9
Total	14.6

"It will be noticed that with the single exception of the Allegheny region, the Northwestern region has a greater percentage of its own cars than any other and, of course, more than the average for the country as a whole. It is frequently argued that the cars belonging to specific railroads should be at once returned to their owners, but this is impracticable and would result in a great sacrifice of equipment otherwise available for commercial uses generally. It would also involve the useless expenditure of a vast amount of power to haul the empty cars from various remote points of the country back to their onwers. However, both the orders and the regulations now in force provide for a gradual relocation of cars to their home lines and this course will make possible a comprehensive program of repairs and betterments.

"Box cars are now being moved toward the west practically as fast as the railroads are able to handle them and are being and will be rapidly distributed over the grain-producing districts, thus bringing the greatest practicable measure of relief to the grain-shipping interests of your section as early as possible. To get a better idea of the extent of this relocation, it may be stated that for the period June 1 to August 5, 1920, a total of 53,300 cars were ordered to the roads of the northwest, of which 33,909 have been delivered by the originating lines, or 64 per cent, and 28,342 received by the destination roads. This latter figure represents 53 per cent. This movement will be continued until the present emergency is passed.

"It is suggested that shippers keep in close touch with their railroad agents and transportation officials concerning the matter of local distribution of cars, co-operating heartily with the railroads in coopering and making as many of such cars cars suitable for grain loading as possible."

The Commission on Car Service has issued a circular to the railroads quoting a letter from C. B. Aitchison, of the Interstate Commerce Commission, to H. B. Thurston, chairman of the Pittsburgh Terminal Committee, with reference to the distribution of available equipment and the point raised by Mr. Thurston as to whether a railroad has the right to refuse to accept a carload from a shipper when the car has been received by the shipper under load and reloaded by him contrary to the requirements of the carrier.

Commissioner Aitchison said:

"It is generally understood that when a car received by a consignee, who is also a shipper, is unloaded by him, the contract with the railway company for the delivery of his goods is thereby fulfilled, and if in the interests of a fair distribution of cars, the carrier desires that such a car be not reloaded by the shipper unloading the car, it has a perfect right to request return of the car empty, and in the event of the shipper loading the car is justified in refusing to accept the load, requiring the shipper to release the equipment and turn it back empty.

"If such a practice were not proper, it would be impossible to make a fair distribution of empty cars, and shippers who are also large receivers of freight would at all times have more cars for outbound loading than they were entitled to, to the disadvantage of other shippers."

The Commission on Car Service says in its circular:

"It is generally recognized that the receipt of a car under load gives an industry no right to demand its use for reloading. If it is entitled to the car based upon a proportionate distribution between all shippers, it is proper that they should use it, but they should not be permitted to use it to the disadvantage of other shippers who do not have inbound freight to supply them with empties for outbound movement. The ruling of Commissioner Aitchison makes clear the rights and obligation of the railroads, and places upon them the duty of making a fair distribution of cars in cases of this kind. In cases of refusal to abide by this rule the facts should be reported to this commission for handling."

Summary of General Conditions

The Commission on Car Service has issued the following summary of general conditions as of August 12:

Box Cars—Demands continue heavy for box cars from all points, and are increasing, due to heavy grain movement. Good progress is being made on the transfer of box cars from eastern and southeastern roads to western lines in order to put on these lines a supply of box cars more nearly equal to their ownership and make available additional supply for grain loading. The watermelon movement is now over in southeastern territory, but it is necessary to give special attention to the handling of ventilated equipment by loading such cars to or in direct route to owners that they may be available for the fall perishable loading.

Automobile Cars—The movement of this class of equipment is not receiving the attention the situation demands and reports continue to reach us of improper loading. The handling of this class of equipment in accordance with car service rules should be strictly adhered to except when cars may be moved loaded or empty for Michigan, upper Indiana or Ohio, where loading is available.

Stock Cars—Demands continue heavy for stock cars required to move perishable freight from the Southwest, and material assistance is now required in building up the supply of stock cars in the Northwest where range cattle and sheep will start to move in a very short time. This class of equipment should be handled with the least possible delay and moved promptly to this territory.

Refrigerator Cars—Reports indicate that requirements for refrigerator cars are being reasonably well protected. It is necessay, however, that movement of these cars be given special attention as the demand may be expected to become active in the very near future, to the end that expeditious movement be accorded.

Flat Cars—The movement of agricultural implements has now reached its peak and flat cars should be handled as expeditiously as possible to insure reasonable car service for these shipments which must move within season. There is also a heavy demand for flats in the Southern territory to protect shipments of logs and timber, a large amount of which is stored and deteriorating through a lack of transportation.

Open Top Cars—In the first half of August production of bituminous coal will show slight improvement over the last half of July. The movement of empty coal cars from western to eastern lines is now progressing on a very encouraging basis, but it will be necessary to continue present orders in effect for some time before the excess eastern cars in the West are relocated to the home roads. The demand for mill cars

in the steel loading districts still continues very heavy but some improvement has been noted during the past week in the car supply, this being particularly true in and around Pittsburgh. Special instructions have gone forth to all railroads to rush the release and expedite the homeward movement of this type of equipment. The issuance of Service Order 12 by the Interstate Commerce Commission continuing in effect the restrictions against placing coal cars for other commodities should result in a continuance of the present favorable rate of coal production. Other commodities such as sand, gravel, stone, etc., will continue curtailed as a temporary emergency measure, but these can be protected when the movement is not materially out of line to the coal fields, and in cases of emergency special permits will be issued by the Interstate Commerce Commission to cover movements in the opposite direction.

Deseamed Rails Show Reduced Base Failures

Nearly Half Million Tons in Service Up to Six Years Show Marked Freedom from Half-Moon Breaks

A REPORT ISSUED by the Interstate Commerce Commission in December, 1919, on its investigation of a derailment on a middle western road caused by a base fracture of a rail emphasizes the importance of the elimination of seams in standard rails. The fracture which resulted in the accident was of the class commonly called half-moon breaks and originated in a longitudinal seam on the under surface of the base about midway of its width. The large number of failures of this type on the same road prompted the investigation in which 748 rails were inspected which failed in this manner. Surface seaminess on the base was a factor common to all which were examined critically. These failed rails represented the product of six mills and had been in service on different divisions of seven railroads. Their weights ranged from 75 to 107 lb. per yard. The periods of time in the track were from 4 months to 13 years. It is apparent, therefore, that according to the extent of the seaminess and also influenced by traffic conditions, half-moon breaks occur early or are deferred for a term of years.

One of the chief causes to which surface seaminess is ascribed is the original surface condition of the rail ingot. Air entrapped against the sides of the ingot mould by the rising metal as it is poured from the ladle forms small disc-like apertures or flaws on the ingot surface. These minute flaws or holes develop into seams under the action of the several passes of the rolling process, the original irregular defect being compressed and elongated into a finely drawn-out seam, frequently six or eight inches in length. A section of rail bar five inches in width has been known to contain 15 or more distinct seams of this character, from 1/16 in. to 8 in. long.

There is also enveloping a steel ingot a partially decarburized, and therefore softer, surface about 5/16 in. in depth and varying from eight to ten points lower in carbon than the interior metal of the ingot. During the rolling operation, this partially decarburized surface becomes gradually thinner under the successive drafts so that in the finished rail the softer, weaker layer of metal varies from 0.01 to 0.04 in. in thickness. It is this soft surface that under the cold rolling action of the wheels causes rail heads to slough off in service and form fins.

It was in the effort to eliminate these two recognized and menacing defects in steel rails that the Lackawanna Steel Company's deseaming process was devised and installed as a part of its standard practice about six years ago. The method consists essentially in treating the rail bar while hot and during the rolling by milling off the surface of the head and base sufficiently to secure freedom from surface defects. Not only are the seams in the head and base eliminated, but the softer, partially decarburized surface is also removed so that the rolls in the remaining passes do their work on the true higher carbon steel of the rail bar. The deseaming machine subjects the top and bottom surfaces of the hot rail bar to the cutting action of teeth on two opposed rotating saw discs just after the bar leaves the last roughing pass. The bar with head down is forced between the saw discs by a pair of driven pinch rolls, adjustable to bars of various sizes and having guides for the top, bottom and sides of the bar. Adjustment at the saws is made for a cut 1/8 in. or at the most 3/16 in. deep. After leaving the saws the rail bar travels along the mill table to the finishing rolls where the final passes are made.

The finished rails made by this process show an absence of the seams and surface defects on the head and base so characteristic of rails produced by the ordinary process, and in addition the harder, firmer surface resulting from the elimination of the soft, partially decarburized layer of metal aids materially toward greater service and reduction of wear. The improvement in head surface in regard to wear and flow of metal is hardly less important than the increased safeguard against base weakness and failure.

In the beginning the treatment was applied only to the base portion of the rail bar but after careful inspection and investigation had proven the efficacy of the development in removing the weak, seamy metal of the ingot, the practice was extended to include both head and base locations and since the middle of 1914, the deseaming process for both head and base has been a permanent part of Lackawanna practice in the production of standard rails.

During 1914 and 1915, about 50,000 tons of deseamed rails were supplied to 11 prominent trunk lines in the southern, central and western states, and installed under widely varying conditions of roadway and traffic. An exhaustive survey and investigation of these installations in 1916 by a well-known inspection agency developed that the rails were rendering excellent service compared with past experience on the same roads, although the length of time they had been in use was hardly sufficient for conclusive results. At that time those roads which had adopted thick base sections as a possible solution to their base troubles expressed a keen interest in a further needed improvement in the wearing qualities of the rail head, while the roads which were still using as a standard a thin base rail were deeply concerned in the possible elimination of base breaks and failures. At the time of the investigation, noticeable results in both directions were apparent.

In January, 1920, a further investigation was made of these installations which substantiated the previous findings and justified the expectations then formed of the future results. On the road which was the subject of the I. C. C. investigation, earlier referred to, over 1,000 tons of deseamed rails had been in service since 1915 with no failures of any kind developing to date. The standard section of this road

is a thick base design, but even with this type the number of base failures in rails of ordinary manufacture was such as to draw the special attention of the Commission.

One of the largest trunk lines serving the Northwest has approximately 17,000 tons of rails in its tracks made under the deseaming process and installed from 1914 to date. In this entire tonnage no breaks of any kind had occurred up the time of the inquiry although the severe traffic conditions had developed numerous failures in rails of other mills. One of the most prominent roads of the central west has in service nearly 12,000 tons of deseamed rails. In reporting rail failures to the A.R.E.A. for 1918, no base breaks were shown in this tonnage, a total of 8 failures only of all classes being recorded, these failures all traceable to causes other than would be affected by the deseaming process. A similar experience on another central western system has so impressed the chief engineer of the road that the deseaming requirement has been incorporated as a part of his standard rail specifications.

On another large system serving the Central and Northern States only ten failures of any nature have occurred in 30,000 tons of deseamed rails laid in track beginning in 1914, none of which were base breaks. Equally satisfying results mark the experience of two of the largest systems in the northwest which have used a total of over 63,000 tons of deseamed rails since the process was instituted in 1914. In 36,000 tons representing the installation on one of the systems, 22 failures were reported in the A.R.E.A. statistics for 1918, 2 only being classed as base failures. On the other system, an installation of 27,000 tons developed, according to the same record, only 5 failures, none of which occurred in the rail base.

Summarizing, the inquiry from which the above data were obtained covered nearly 125,000 tons of rails laid in 1914 and later on 7 principal trunk lines of the west and northwest. In the total tonnage, there have been reported 45 failures, 15 being classified as broken, 2 as base breaks. Even considering all breaks as chargeable to base seams in the rail, the aggregate of 17 such failures would constitute an extremely low average in the tonnage involved.

The rail failure statistics of the American Railway Engineering Association offer convincing figures on the effectiveness of the deseaming process. In the rollings of 1913, the year just preceding the installation of the process, the failures in Lackawanna rails as reported in 1917 statistics, averaged one failure per 2.60 miles of track. In 1914 rollings, this average was reduced to one failure per 6.31 miles of track, although the process was in use only a part of that year. In 1915 rails, the miles of track per failure increased to 19.45 and in 1916 to 94.80.

The A.R.E.A. statistics mentioned carry reports on approximately half a million tons of rails made since 1914 by the deseaming process. This tonnage embraces a considerable variety of rail sections and chemical specifications, and is installed under widely differing conditions of climate, maintenance and service, making it extremely representative for comparative and analytical purposes. In the entire quantity there had developed up to the date of the compilation of statistics, only ten base failures. A consideration of this showing in comparison with a record in the same period of 249 base failures in approximately three million tons produced by the ordinary practice in five other mills.

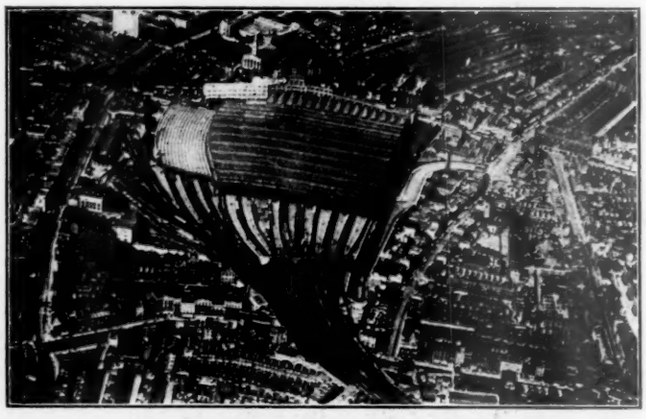
It is time the public understood that transportation must be treated as a vital industry. It must be made a profitable industry to all engaged in it, not out of special consideration for them, but as a fundamental condition for the health and growth of all business. This statement applies as well to the capital invested as to the labor employed.—Bulletin of the National City Bank of New York.

Operating Statistics for March and Three Months

THE INTERSTATE COMMERCE COMMISSION has begun the issuance of a monthly statement of operating statistics somewhat similar to those compiled by the Railroad Administration, giving totals and averages by regions and for the United States. The compilation of averages for the United States for March and three months is as follows:

	Item	March		Three months ending March	
		1920	1919	1920	1919
45.	Net ton-miles per mile of road operated...	168,387	132,022	453,657	367,783
46.	Net ton-miles per frt. train mile	725	690	685	658
47.	Net ton-miles per loaded frt. train car-mile	28.3	27.7	27.9	27.8
48.	Gross ton-miles per frt. train-mile	1,450	1,441	1,380	1,368
49.	Per cent loaded to total frt. train car-miles (excl. caboose).....	72.3	68.1	71.7	67.2
	Ratio loco.-miles (excl. light), to train miles:				
50.	Freight*	1.08	1.08	1.08	1.09
51.	Passenger*	1.01	1.01	1.01	1.01
52.	Per cent net to gross ton-miles, frt. train.	50.0	47.9	49.6	48.1
	Car-miles per train-mile:				
53.	Freight train*.....	36.4	37.6	35.3	36.1
54.	Passenger train*.....	6.2	6.2	6.2	6.1
55.	Car-miles per car-day.	23.8	(1)	23.3	(1)
56.	Net ton-miles per car-day	495	(1)	466	(1)
57.	Per cent serv. of total cars on line.....	93.0	(1)	93.3	(1)
58.	Per cent stored of serv. cars	(1)	(1)	(1)	(1)
59.	Per cent home of total cars on line.....	(1)	(1)	(1)	(1)
	Costs per freight train-mile:†				
60.	Locomotive repairs....	$0.449	$0.443	$0.461	$0.449
61.	Train enginemen.....	.271	.220	.276	.222
62.	Fuel for train locomotives	.551	.523	.580	.535
63.	Other locomotive supplies	.041	.044	.046	.047
64.	Enginehouse expenses.	.106	.117	.112	.118
65.	Trainmen	.313	.260	.315	.260
66.	Train supplies and expenses	.062	.067	.070	.065
67.	Total	1.793	1.674	1.859	1.696
	Costs per passenger train-mile:†				
68.	Locomotive repairs ...	.277	.258	.286	.257
69.	Train enginemen.....	.124	.111	.125	.109
70.	Fuel for train locomotives	.255	.233	.266	.240
71.	Other locomotive supplies	.023	.023	.024	.023
72.	Engine house expenses	.073	.074	.075	.075
73.	Trainmen	.137	.125	.140	.122
74.	Train supplies and expenses	.083	.083	.095	.085
75.	Total	.972	.907	1.011	.911
	Fuel for train locomotives, charged to Account No. 394:				
76.	Net tons of coal.....	9,997,200	8,108,715	29,738,188	25,227,682
77.	Average cost per ton.	$3.49	$3.45	$3.64	$3.44
78.	Gallons of oil.....	136,731,279	102,625,310	417,922,562	319,709,871
79.	Average cost per gallon	$0.036	$0.039	$0.033	$0.037

* Excluding mixed and special.
† Including mixed and special.
(1) Figures are not available.



An Airplane View of Waterloo Station, London

How One Railway Personnel Department Operated

A Review of the Organization Created During the War on One Road and Some of the Results

By C. C. Cook
Maintenance Engineer, Baltimore & Ohio, Baltimore
Baltimore, Md.

Early in 1918 the constant withdrawal of employees from railroad service and the forced necessity of filling the vacancies from any available source drew the attention of the management of one of the larger systems then under federal control to the need of a department which would secure an adequate supply of efficient workmen and provide ways and means for their retention in service. It was decided to establish a personnel department, modeled upon the organizations which had then been most successful in larger industrial companies, in so far as the principles and methods of such organizations could be made effective in railroad work. This railroad had for a number of years maintained at system headquarters a well-organized service record bureau which covered all of the 60,000 or more employees with the exception of the "floating" unskilled labor in the maintenance of way and stores departments. The records of that bureau were dependent upon the monthly payroll and other periodical reports from division officers and were designed to keep as near current as possible the individual record of each employee so far as the date of his employment, the character of his service as to merit and discipline and the date of his separation from service were concerned. It was not possible to learn from these reports or records the exact condition with respect to the general or local employment situation any earlier than two to three months after the actual change had taken place. This service record bureau, however, had maintained admirable records for the purposes for which they were intended and it served as a splendid nucleus for an enlargement into a personnel department.

In starting the work the chief operating officer issued circulars announcing the creation of the department of personnel and outlined its purposes, as follows: (1) To develop fields for recruiting workers; (2) to maintain a list of prospective employees for all branches of railroad service; (3) to select new employees of proven character and ability to perform their duties; (4) to provide opportunities for training employees along Americanization, scholastic and vocational lines; (5) to provide equal opportunity to all for advancement through the development of a "Promotion List"; (6) to welcome at all times suggestions from any employee and arrange for their impartial consideration by the proper officers; (7) to arrange transfers of employees according to the fluctuations of work and mutual advantage of the men and the road; and (8) to ascertain definite reasons for employees separating from service and arrange for corrective measures.

The organization of the department follows:

Position	Duties
Manager	General direction.
Assistant manager	Supervision field forces and statistics.
Chief, service record bureau	Service records.
Supervisor of office equipment	Employment and transfer of office forces.
Chief labor agent	Direction of labor agents.
Employment supervisors (One at each division headquarters)	To carry out purposes of department on their respective divisions.
Traveling employment supervisors (One at each division headquarters)	To asssist employment supervisors.
Labor agents (One at each center of supply of laborers)	To handle special demands—principally unskilled labor.

The work of the department was divided into four phases:

(1) Selecting, testing and hiring the worker.
(2) Record of service of the employee.
(3) Training and placing the employee.
(4) Retaining and serving the employee.

The exigencies of the war situation demanded that extraordinary effort and importance (otherwise undue) be given to the hiring of men who were then urgently needed in all departments. The work of employment, however, was systematized in such a way that a report of each individual hired at any point on the system was on record in the division and general office not later than two days after being employed. This was accomplished by means of an "Employment Slip" which gave all essential information for record of the party employed and was made out in triplicate by the employment supervisor. One of these copies was retained by the employment supervisor, one was sent to department headquarters and one copy was delivered by the employee to the foreman, who in turn receipted and forwarded it to the employment supervisor.

These "employment slips" were designed so that they formed a card index divided as to division, department and occupation. It was possible for one clerk in the central office to maintain this card record strictly up-to-date and prepare daily a statement of the number of men employed in each occupation on each division and system as a whole, and this notwithstanding that a total of 22,690 men were employed in the five months from August to December, 1918, an average of nearly 200 new employees per working day.

On Saturday of each week each employment supervisor secured from the heads of the various departments and forwarded to headquarters on a standard form a statement of the number of men of each occupation which were needed. This form showed for each location and for each occupation the following information:

(a) Number of men hired last week.
(b) Average number required per day.
(c) Average number in employ per day.
(d) Number short (b-c).

This weekly record was compiled for the system as a whole and the management was completely informed each week as to the status of each department and each occupation on each and all divisions and each and every station or location on the system.

At the end of each month the employment supervisor secured from the division officers of each department a report of men who separated from the service. These separations were reported to headquarters and from these and preceding reports a monthly statement of "Labor Turnover" per division and department was made. The "Labor Turnover" results, as developed by this report were startling, as for instance in November, 1918, a certain department on one division had a turnover of 1020 per cent., while the same department on another division had 52 per cent and all departments on the system 126 per cent. Certainly there was evidence of need for determining the cause for such great variations in similar occupations in the same department, and the need for corrective measures.

Again it was surprising that during the "Armistice" month, when the demand for labor was at its peak, the labor turnover on a leading railroad system was considerably less than the majority of the industries—many of whom had much-heralded reputations for higher and bonus

pay and special inducements to workmen which railroads were unable to make.

Selection and Tests of Employees

Personnel Department representatives were carefully chosen, mainly from the ranks of the other departments, and their abilities as transportation, mechanical or maintenance of way and structures men were relied upon in selection of employees. A system of "Occupational Qualifications and Test" cards similar to those in use in the U. S. Army, but developed by specialists in railroad occupations, was designed for assistance of these representatives and promised to be of invaluable help in selection of desirable employees. This feature had not been developed further than the training previously offered by other departments through their instruction schools and manuals, except to the extent that new employees of foreign extraction were urged to take advantage of the Americanization schools available in the more congested localities. The field for development of training along vocational, scholastic and Americanization lines is wide and is one that promises most beneficial results through proper organization and development.

The one most essential need of the railways is that of the establishment of consistent and harmonious relations between the company, its officers and employees. A decaying morale resulting from many conditions associated with the world war had set in even prior to 1918. It was and still is necessary to eradicate all suspicion of diversity of interests and of favoritism or tyranny in management, and to inculcate throughout the entire personnel the spirit of cooperation, helpfulness and unfailing justice and loyalty.

It was felt that the personnel department, with its outlined purposes, afforded the most practical and definite way for the accomplishment of those ideals. When any company assigns competent and enthusiastic representatives to the special duty of dealing with the human element in its business, and those representatives, with an intelligent understanding of the problems and of the hopes and the aspirations of the employees, are forming a contact between the company and the employee similar to that which existed between employees and employers when organizations were small and the head of an industry was in personal touch with each of his employees, that company is in a fair way to arrest the discontent of which much complaint is now heard and will turn a disinterested and perhaps sullen crowd of workers into a loyal and happy band of employees.

It is not to be construed that these features have been neglected by those in charge of the various departments, nor is it to be feared that a personnel department will attempt to usurp the prerogatives of officers of other departments. The conditions that have resulted in the comparative neglect of the problem of the employee have arisen out of the emergencies that called for the extreme effort in production of transportation, and out of the plight in which the railroads found themselves when caught between the upper and nether millstones of limited revenues and leaping expenses. It is only important now that the situation be realized and definite means for its remedy be adopted and enforced.

It is a difficult and thankless task for the pioneer in developing a personnel department. Prejudice, suspicion and doubt as to the benefits on the part of those unfamiliar with its purposes or with its successful operation in leading industries, large and small, must be overcome. Men of optimism, tact, vision, energy and strength of character are needed to formulate and carry out the policies. But above all is needed the adoption of the principles of the work as a policy of the company by the authority of its highest officer or board of direction. It is not paternalistic, neither is it welfare work. It is a cold business proposition, one for the management to adopt or discard. It will not grow up from the bottom.

The problem of selecting, training, serving and retaining desirable and efficient employees is an intensely practical one that has been tested at least far enough by one railroad personnel department to justify the prophecy that an improvement in relationship between company and employee lies in that direction.

Proposed Capital Expenditures for 1920

WASHINGTON, D. C.

CAPITAL EXPENDITURES for additions and betterments and new equipment during 1920 to the amount of $762,256,108 had been authorized or proposed by 122 Class 1 railroads before the rate decision was announced, according to a compilation of replies received by the Interstate Commerce Commission in response to a telegram sent to the roads for the purpose of advising the commission, in connection with its disposition of the $300,000,000 loan fund, as to the probable expenditures to be substantially completed during 1920. The telegram was sent by Alfred P. Thom, counsel and vice-chairman of the Association of Railway Executives, on March 20, but the compilation published herewith gives a summary of the information furnished by the roads up to July 1, as their estimate of the most essential expenditures.

The table given herewith represents replies from 54 eastern, 19 southern and 49 western roads. They were asked to state the proposed expenditures under the different classifications shown in the table which had been authorized or substantially decided upon, but the replies indicated various degrees of definiteness as to the different items as many roads had not yet definitely determined upon their budgets and many had made plans contingent upon their receiving loans from the $300,000,000 fund provided by the transportation act. Therefore in some cases the items represent specific authorizations and in other cases the estimates of the railroad officers of their minimum requirements and it is regarded as probable that in many cases the amounts proposed will be increased as a result of the rate decision, as the estimates indicated the amount of work which the roads considered most desirable and necessary for the public service, made at a time when they were still somewhat uncertain as to the future. The summary of the information furnished up to July 1 is as follows:

Final summary of replies received by the Interstate Commerce Commission from 122 Class I roads in response to telegram requesting information regarding authorized and proposed capital expenditures to be substantially completed during the year 1920:

	Item	Eastern District	Southern District	Western District	United States
1	Additional main tracks	$9,857,669	$1,493,850	$11,661,253	$23,012,772
2	Additional yard tracks and sidings	23,252,029	3,791,112	15,440,110	42,483,251
3	Signals and interlocking plants	3,897,696	316,944	2,553,116	6,767,756
4	Shops	21,979,435	5,207,055	16,668,918	43,855,408
5	Station and station facilities	4,377,089	2,345,635	9,725,266	16 447 990
6	Extensions and branches	3,099,844	512,322	2,763,916	6,376,082
7	All other road improvements	62,101,761	13,821,133	77,542,929	153,465,823
	Road expenditures not itemized	.....	.....	.....	.....
	Total, road	128,565,523	27,488,051	136,355,508	292,409,082
8	Locomotives	46,041,564	11,511,045	48,063,557	105,616,166
9	Box cars	42,165,896	5,962,071	49,131,633	97,259,600
10	Open top cars	40,508,475	3,956,175	21,672,500	66,137,150
11	Refrigerator cars	4,995,000	4,762,500	15,130,000	24,887,500
12	Other freight train cars	5,616,401	2,089,836	15,567,318	23,273,555
13	Passenger coaches	24,979,475	3,267,606	7,532,765	35,779,846
14	Other passenger train equipment	7,318,120	1,699,746	5,378,061	14,395,927
15	All other equipment, new	3,409,769	682,851	8,259,689	12,352,309
16	Improvements to existing equipment	25,204,347	2,009,991	17,663,435	44,877,773
	Equipment expenditures not itemized	600,000	7,723,000	1,237,000	9,560,000
	Total, equipment	200,839,047	43,664,821	189,635,958	434,139,826
	Expenditures not separated between road and equipment	35,707,200	.....	.....	35,707,200
	Total	365,111,770	71,152,872	325,991,446	762,256,108

General News Department

The National Railways of Mexico will advance its freight rates 25 per cent on September 1 according to recent reports from Mexico City, although the advances will not apply on traffic between certain competitive points.

The headquarters office of the Railway Employees' Department of the American Federation of Labor has been moved from Washington to Chicago in order to be near the office of the Railroad Labor Board.

Harry J. Bell, formerly supervisor of safety for the Northwestern region, U. S. Railroad Administration, has been appointed secretary of the Chicago section of the National Safety Council and the Chicago Association of Commerce.

A temporary injunction restraining employees of taxicab and transfer companies from soliciting business in its station and upon its platforms at Milwaukee, Wis., has been granted the Chicago & North Western. The company claims that it has entered into an agreement with the Milwaukee Transfer Company, by which passengers are conveyed to any part of the city. The transfer company has been granted the right to solicit on trains and to use the disputed property for parking purposes.

The Erie, on August 10, reopened its Chicago river barge service, which has been discontinued since the beginning of the war. The reestablishment of the barge service was coincident with the reopening by the Erie of its freight depots at Kingsbury and Erie streets and Webster avenue and the river. The cars are loaded upon the barge at the Eighteenth streets yards of the railroad and are towed by tug to the north side terminals, where they are distributed by electric locomotives. The service was resumed at the request of the North Side Business Men's Association. A description of this service appeared in the *Railway Age Gazette* of November 2, 1917, page 807.

The Joint Conference Committee of the national societies of civil, electrical, mechanical and mining engineers has issued an invitation to engineering and allied technical organizations to become charter members of the Federated American Engineering Societies, the organization conference of which was held in Washington, D. C., on June 3 and 4, and the proceedings of which were reviewed in the *Railway Age* of June 11, page 1667. The engineering societies are also asked to appoint delegates to the first meeting of the American Engineering Council, which will be held this fall and of which more detailed notice will be made later.

Outlaw Strike Leaders Indicted by Jury

Indictments against 41 leaders in the "outlaw" railroad strike voted by the federal grand jury at Chicago on August 4 have been refused by Judge Samuel Alschuler because the names of those indicted became known several hours before the grand jury completed its report. Judge Alschuler ordered the indictments placed under seal until an investigation of the alleged "leak" is completed. The indictments as drawn up charge the men with violation of the Sherman and Lever acts in conspiring to tie-up the transportation of necessities of life through the agency of "outlaw" yardmen's strikes last spring. All of the men named in the indictment are members of the Chicago Yardmen's Association, of which John Grunau is president, and of the United Enginemen's Association, of which H. E. Reading is chairman. According to press reports both men are named in the indictment.

The "Super Power Zone" Survey

The scheme for creating a "super-power zone" on the Atlantic coast, noticed in the *Railway Age* of February 27 (page 645), is to be the subject of a survey of production and distribution methods, by the Geological Survey, work on which has already been begun. This survey will cover the territory between Boston and Washington, and from the Coast back 100 to 150 miles, and will include a comprehensive study of methods for the utilization of water power.

George Otis Smith, director of the Geological Survey, announces that "the chief objective of the survey is to investigate the possibilities of economy that might result from the establishment in the Boston-Washington industrial district of a general system for the generation and distribution of electrical power. It will also include research into probable future electrification of railroads and more complete electrification of industries. All possible sources of power, developed and undeveloped, will be studied. . . ."

W. S. Murray, of New York, is the consulting engineer in charge of the survey, with Lorin E. Imlay, Henry W. Butler and Carey T. Hutchinson as his chief assistants. Congress has appropriated $125,000 for the survey and it is expected to be completed in about 18 months.

Chicago Section, American Welding Society

A Chicago section of the American Welding Society was organized at a meeting of the members of the welding trade in Chicago on August 3. Representatives were in attendance from many of the railroads and also from many of the larger local industries. M. B. Osburn, assistant superintendent of the Pullman Car Works, was elected chairman; O. T. Nelson, president of the General Boilers Co., was elected vice-chairman, and L. B. Mackenzie, president of the "Welding Engineer," secretary and treasurer. Directors for three years are: E. Wanamaker, electrical engineer, C. R. I. & P.; H. B. Bently, superintendent of motive power and machinery, C. & N. W.; Andrew Oliver, welding supervisor, Standard Oil Company, and W. M. Brady, commercial engineer, General Electric Company. Directors for two years are: Harold Cook, managing editor of the "Acetylene Journal"; W. A. Slack, president of the Torch Weld Equipment Company; K. R. Hare, district manager of the Transportation Engineering Company, and J. M. Jardine, partner, Western Welding & Equipment Company. Directors for one year are: W. H. Bleecker, Jr., district manager of the Page Steel & Wire Company; Oliver Mitchell, partner, A. F. Mitchell & Son; Walter L. Senhert, president of the Welded Products Company, and Don B. McLeod, secretary and treasurer of the Gas Products Association. Meetings will be held on the second Tuesday of each month in the rooms of the Western Society of Engineers.

Railway Employees Elected to Board of Directors

The Duluth, Missabe & Northern has recently elected to its board of directors a number of its officers "who have shown by their skill and efficient service that they are qualified to act upon the board of directors."

The membership of the board is now as follows: W. A. McGonagle, president of the road; C. E. Carlson, secretary; C. W. Kieswetter, traffic manager; W. H. Hoyt, chief engineer; J. W. Kreitter, superintendent; J. W. Kempton, treasurer; Joseph Seifert, auditor.

C. P. R. Has Taken Back 7,008 Returned Soldiers

The Canadian Pacific now has in its employ 18,330 returned soldiers who enlisted in the Canadian, British and United States armies, or more than 20 per cent of the total payroll.

Every man in the company's employ who volunteered was given six months' pay and was promised a position on his return of equal value to the one he left.

Of 11,062 men who joined the army 1,100 paid the supreme sacrifice, 2,088 were wounded and 7,008 who applied for reinstatement were given employment at a higher wage or salary.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JUNE, 1920

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses					Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance of									
		Freight.	Passenger.	Total (inc. misc.)	Way and structures.	Equipment.	Traffic.	Transportation.	General.	Total.					
Pittsburgh & Shawmut	103	$114,999	$4,648	$120,527	$30,213	$40,370	$1,310	$48,362	$5,487	$125,743	104.32	$5,216	$112	$5,328	$24,501
Pittsburgh & West Virginia	63	166,069	8,921	193,474	69,543	27,989	1,483	71,940	9,354	192,428	99.45	1,045	14,215	—14,231	58,307
Pittsburgh, Shawmut & Northern	209	100,263	4,939	108,627	37,078	49,775	1,233	53,671	5,564	147,328	135.62	—38,701	1,891	—40,593	4,270
Port Reading	21	57,257	.....	70,073	18,860	4,163	18	52,810	4,780	80,632	115.07	—10,559	12,007	—22,567	—82,837
Quincy, Omaha & K. C.	255	69,392	24,974	103,765	68,241	25,081	762	57,979	5,306	157,296	151.58	—53,531	4,172	—57,666	—47,646
Rich., Fred. & Potomac	117	419,326	247,014	814,205	92,178	145,185	5,737	362,497	26,139	646,851	79.44	167,354	31,050	136,303	—425,010
Rutland	415	269,384	126,654	485,388	140,296	176,662	6,150	259,468	15,541	600,152	123.64	—114,764	18,238	—133,002	—175,666
St. Joseph & Grand Island	258	200,789	34,695	254,069	146,935	48,237	2,152	139,953	14,058	353,780	139.24	—99,711	11,882	—111,593	—214,069
St. Louis, Brownsville & Mexico	548	182,442	179,146	399,414	113,344	102,877	13,431	198,820	24,525	452,871	113.38	—53,457	12,306	—66,038	—178,865
St. Louis Merchants Bridge Terminal	9	.....	.....	313,567	47,959	60,046	862	258,757	7,777	375,401	119.72	—61,834	9,845	—71,802	20,815
St. Louis-San Francisco	4,757	4,927,060	2,084,976	7,548,943	1,223,673	1,566,377	61,730	2,766,737	225,968	5,826,287	77.18	1,722,655	249,962	1,472,379	127,609
St. Louis Southwestern	968	1,458,401	176,584	1,699,534	246,366	282,122	49,876	495,201	52,903	1,131,246	66.56	568,288	70,437	497,850	214,862
St. Louis Southwestern of Texas	807	557,946	121,119	728,142	216,794	245,143	18,568	366,089	38,234	884,497	121.47	—156,355	23,000	—179,382	—46,493
St. Louis Transfer	6	.....	.....	104,528	8,541	13,779	240	55,777	2,551	80,887	77.38	23,641	273	23,368	3,779
San Antonio & Aransas Pass	736	212,682	100.257	342,646	85,031	86,909	7,810	245,696	20,293	445,460	130.00	—102,814	13,750	—116,584	2,424
San Antonio, Uvalde & Gulf	317	79,702	37,126	124,887	18,337	14,473	2,457	63,379	5,413	104,061	83.32	20,826	2,200	18,626	28,674
Seaboard Air Line	3,563	2,830,479	789,944	3,970,125	1,069,616	1,311,572	109,633	2,449,976	191,111	5,162,264	130.02	—1,192,139	150,000	—1,342,964	—1,817,100
South Buffalo	11	65,001	.....	124,487	7,772	16,615	1,053	87,379	2,031	114,851	92.26	9,636	3,580	6,056	19,128
Southern Railway	6,971	7,782,387	2,998,451	11,777,265	1,815,897	2,590,902	184,457	6,311,601	411,861	11,440,426	97.13	336,839	412,124	—76,440	—225,170
Alabama Great Southern	313	726,295	198,799	984,664	96,113	178,020	18,593	378,742	26,666	705,924	71.69	278,739	34,413	243,797	125,443
Cincinnati, New Orleans & Texas Pacific	338	1,194,504	333,073	1,617,743	230,619	446,476	23,785	711,146	41,573	1,460,947	90.30	156,796	60,490	96,305	—102,662
Georgia Southern & Florida	402	236,764	101,041	377,933	72,052	113,013	8,331	248,308	13,569	458,315	121.26	—80,381	19,250	—100,089	—76,515
New Orleans & Northeastern	207	477,009	167,992	636,156	104,593	156,030	10,152	330,363	27,926	634,150	99.68	2,006	43,119	—41,109	—107,426
Northern Alabama	110	97,480	12,728	112,436	30,534	10,840	1,690	71,208	3,952	118,225	105.14	—5,788	4,580	—10,369	—15,060
Southern in Mississippi	278	71,296	46,002	122,563	80,208	31,741	2,846	108,671	7,345	230,812	188.32	—108,249	9,860	—118,049	—75,404
Southern Pacific Co	7,105	11,414,999	4,841,684	18,080,938	2,304,035	3,086,844	121,800	6,225,400	411,828	12,555,260	69.43	5,525,679	1,726,069	3,799,065	570,971
Southern Pacific S. S. Lines	...	377,513	30,236	415,606	2,185	229,865	8,946	450,837	24,744	736,243	177.14	—319,638	9,997	—329,635	—366,270
Spokane International	165	114,502	17,562	136,698	27,322	7,869	2,268	37,855	5,110	82,700	60.50	53,998	5,170	48,828	23,448
Spokane, Portland & Seattle	549	520,441	237,592	814,902	151,596	99,843	9,213	245,610	23,707	543,182	66.65	271,720	90,610	181,110	29,205
Staten Island Rapid Transit	23	78,794	112,768	212,950	41,822	32,970	1,556	109,108	10,299	195,755	91.92	17,195	15,000	2,195	—17,362
Tennessee Central	292	140,849	52,186	209,193	44,372	48,380	5,001	118,560	10,257	226,532	108.28	—17,339	5,670	—23,043	17,321
Terminal R. R. Assn. of St. Louis	36	.....	.....	383,391	61,760	68,659	911	167,181	10,870	313,490	81.77	69,900	36,469	33,431	11,784
Texarkana & Ft. Smith	93	141,835	22,314	177,411	22,036	19,673	4,982	61,635	5,820	114,050	64.28	63,362	8,070	55,292	10,241
Texas & New Orleans	469	478,911	175,008	728,780	222,004	226,667	9,143	295,513	21,671	807,428	110.79	—78,648	42,473	—121,500	—209,823
Texas & Pacific	1,946	2,049,309	968.883	3,244,296	553,707	658,210	38,624	1,275,705	92,718	2,660,520	82.01	583,776	120,800	461,625	—33,438
Toledo & Ohio Central	503	959,096	68,206	1,081,712	193,558	292,211	9,885	602,465	28,387	1,130,051	104.47	—48,339	114,702	—163,042	—288,555
Toledo, St. Louis & Western Ry	454	865,715	36,586	943,627	308,098	205,584	14,481	387,224	16,489	931,876	98.75	11,751	31,000	—19,249	—22,801
Toledo, Peoria & Western	247	113,225	47,166	171,589	27,898	36,351	2,018	77,376	7,230	150,813	87.89	20,776	8,500	12,276	48,098
Trinity & Brazos Valley	368	93,493	21,820	125,573	46,728	47,236	2,212	55,153	10,661	161,989	128.99	—36,416	7,210	—43,626	24,022
Ulster & Delaware	128	69,669	27,449	121,786	16,973	20,990	4,587	84,791	7,512	135,447	111.21	—13,661	5,000	—18,661	9,774
Union R. R. of Pennsylvania	40	.....	.....	1,128,062	131,088	247,326	259	648,493	9,714	1,036,881	91.91	91,181	12,733	78,448	254,408
Union Pacific	3,614	6,812,369	2,065,486	9,854,262	2,389,612	2,278,170	111,686	3,268,653	348,697	8,734,312	88.63	1,119,951	484,264	635,631	—1,799,071
Utah	98	164,137	1,107	165,640	26,328	36,049	159	39,638	3,179	105,353	63.60	60,283	5,067	55,221	29,444
Vicksburg, Shreveport & Pacific	171	200,961	101,563	330,666	67,456	65,895	6,871	116,881	11,738	272,475	82.40	58,191	13,717	44,469	—5,899
Virginian	523	1,167,690	66.165	1,372,154	172,618	276,371	8,242	490,254	32,738	976,663	71.18	395,491	64.382	331,110	—40,285
Western Pacific	1,011	1,024,222	290,035	1,403,839	213,296	174,454	29,245	439,814	34,331	920,502	65.57	483,338	59,861	423,475	171,780
Western Maryland	797	1,223,233	96,879	1,405,528	423,671	580,100	34,312	699,491	68,591	1,828,562	130.10	—423,034	50,000	—473,034	—516,470
Western of Alabama	133	115,679	78,285	213,751	37,009	57,756	10,164	102,131	12,039	223,341	104.49	—9,591	7,175	—16,766	—31,215
Wheeling & Lake Erie	511	1,238,152	64,068	1,460,575	228,197	302,457	10,710	571,488	32,591	1,148,504	78.63	312,072	64,800	247,272	—130,937
Wichita Falls & Northwestern	328	135,312	46,260	193,579	74,666	27,034	651	122,417	8,771	233,424	120.58	—39,845	10,596	—50,442	—49,771
Wichita Valley	256	72,896	34,387	113,923	35,120	16,373	.....	59,459	686	111,638	97.99	2,286	5,707	—3,422	—14,022
Yazoo & Mississippi Valley	1,381	1,821,723	415.077	2,355,577	612,854	626,459	23,525	939,083	60,045	2,266,681	96.23	88,896	81,417	6,475	—229,289

SIX MONTHS OF CALENDAR YEAR 1920

Alabama & Vicksburg	141	1,015,238	397,206	1,569,702	239,538	294,074	31,442	569,615	59,565	1,212,436	77.24	357,266	81,700	275,487	246,289
Ann Arbor	301	1,791,599	307,921	2,281,158	324,358	512,742	35,687	1,164,706	82,310	2,119,991	92.93	161,167	103,400	57,735	—47,140
Arizona Eastern	378	1,512,492	319,332	2,004,292	398,341	296,166	20,119	61,527	106,868	1,456,971	72.69	547,322	166,715	380,436	60,614
Atchison, Topeka & Santa Fe	8,702	63,987,314	24,837,167	99,492,068	14,516,518	23,338,332	1,072,917	34,262,162	1,763,677	74,922,955	75.31	24,869,113	5,027,224	19,536,313	6,767,236
Atlanta & West Point	93	760,065	519,216	1,482,698	187,879	257,464	37,419	564,408	56,203	1,127,376	76.04	355,322	47,655	307,666	15,410
Atlanta, Birmingham & Atlantic	639	2,059,894	439,395	2,785,175	618,000	797,492	108,560	1,458,759	108,711	3,091,927	111.01	—206,752	98,360	—406,437	403,363
Atlantic City	177	661,885	1,073,377	1,849,101	300,848	255,767	9,872	1,091,800	9,747	1,668,642	90.24	180,459	84,182	96,257	—208,247
Atlantic Coast Line	4,891	83,900,095	9,468,455	36,919,086	5,056,393	7,343,942	413,558	16,691,835	769,738	30,536,364	82.71	6,382,723	1,600,000	4,775,154	232,725
Baltimore & Ohio Chicago Terminal	90	.....	.....	1,014,189	264,308	342,932	7,050	822,256	64,529	1,527,697	150.63	—513,508	177,760	—691,269	—13,288
Baltimore & Ohio	5,153	77,585,877	13,342,862	99,786,722	14,200,152	30,213,365	1,168,966	46,636,151	2,673,405	95,601,455	95.80	4,185,267	3,313,504	852,244	4,270,916
Baltimore, Chesapeake & Atlantic	87	413,466	160,934	626,931	59,626	317,959	6,579	420,600	22,080	826,844	131.88	—199,913	22,200	—222,113	177,983
Bangor & Aroostook	658	2,503,950	482,926	3,213,002	722,009	726,206	23,477	1,248,665	103,298	2,868,665	89.28	344,336	156,616	187,718	60,910
Beaumont, Sour Lake & Western	118	763,646	180,392	991,463	197,106	137,699	15,188	358,161	31,884	739,702	74.61	251,761	16,100	235,642	248,369
Belt Ry. Co. of Chicago	31	.....	.....	1,861,140	219,543	366,922	3,525	1,173,356	46,201	1,809,547	97.23	51,593	131,773	—80,180	—13,549
Bessemer & Lake Erie	225	4,618,541	215,349	5,018,071	667,978	1,906,676	79,968	1,876,535	172,239	4,740,316	94.46	277,755	91,000	186,729	—865,558

Mechanical Handling of Materials

A Materials Handling Section of the American Society of Mechanical Engineers was organized at a meeting in the Engineering Societies Building, New York City, Friday, August 13. Robert M. Gates, Lakewood Engineering Company, acted as temporary chairman, and a spirited discussion was formally opened by Harold V. Coes, of Ford, Bacon & Davis; Fred M. Feiker, vice-president, McGraw Hill Co.; E. Logan Hill, formerly secretary of the Port and Harbor Facilities Commission of the U. S. Shipping Board, also assistant general manager of the Erie R. R. A nominating committee was appointed and ballots will be sent out for the election of officers just as soon as the committee makes its report.

Hearings Before Railroad Labor Board

The United States Railroad Labor Board, sitting in Chicago on August 13, heard representatives of the Lighter Captains' Union of New York, who are requesting increased compensation. The hearings in this case occupied but one session of the board. On the afternoon of the same day the board began hearings upon the application of all of the employees of the Bangor & Aroostook who are asking for wage increases comparable with those granted other railway workers on July 20. A separate hearing for the employees of this road is necessary because it was not represented by the Conference Committee of Managers of the Association of Railway Executives which presented the railroad's side of the recent wage hearing which terminated with the award of July 20.

An Extensive Installation of "Slow-Boards"

Acetylene gas lights—of use presumably in daylight as well as in darkness—are to be set up at certain points classed as dangerous on the highways of Maryland; and, according to a Baltimore paper, the State Roads Commission has adopted a plan to install several thousand of them, providing suitable warnings for high speed motorists at all railroad crossings, cross-roads, sharp curves and steep descending grades. It is proposed to use red lights at the approaches to railroads, green for cross-roads, yellow for curves and blue for grades.

The lights are made by the American Gas Accumulator Company and it appears that the scheme contemplates the use of the lamp posts for the display of advertisements—advertisements in sufficient amount and variety, no doubt, to pay the whole cost of installation and maintenance.

There is some question of the legal status of a highway bearing an advertisement, and, at last accounts, activities had been suspended pending the receipt of an opinion from the attorney general.

To Promote Trainmen's Health

F. J. Bailey, a Texas railroad conductor, writing in the Railroad World, of San Antonio, calls for more regular rest-hours for trainmen. The Russell Sage Foundation, investigating railroad employees' working conditions, in Illinois, reports that "irregular hours and the unbroken periods of work for week after week and month after month, without a regular day of rest, are arduous features of railroad employment." This was the finding in a study of industrial conditions in Springfield, Ill. Mr. Bailey, enlarging on this condition, from his own experience, calls on his fellow workers to take more reasonable views of life. He quotes Secretary of Labor William B. Wilson, in an address at the annual memorial service of the Railroad Brotherhoods in Philadelphia, who spoke of the fallacious economy of the railroad labor schedule calling for sixteen hours as the maximum of a day's labor. Secretary Wilson "hoped to see the time when railroad men, instead of spending every other night or so away from home, would be enabled to spend all their off hours at home with their families." Continuing, Mr. Bailey says: "Organized railroad men in England have demanded that runs be arranged to permit all trainmen to return home the same day. This would be regarded by many as a revolutionary suggestion; but it is not at all impossible of accomplishment. The cost of shortening divisions so that crews arriving at the same time from opposite points could exchange trains, each returning to his point of departure, would be considerable, but it would be balanced by improvement in the service, by the increase in the contentment item of the cost of living which cuts such an important figure and the health of the men, and by the elimination of that in the case of train service men who have to maintain practically two establishments. . . ."

Federated American Engineering Societies

This is the name proposed for an association now being promoted by members of the Engineering Council which was organized for war work in 1917. Invitations have been sent out to the 150 leading engineering societies in the United States to appoint delegates to an organization meeting in the Fall. The new organization will have an executive body to be known as the American Engineering Council, representation in which will be granted to the component organizations. Calvert Townley, president of the American Institute of Electrical Engineers (New York), in a statement outlining the proposals, says that the national council will co-ordinate the work of State councils and of local affiliations whenever these activities are of national importance. It will have an annual meeting and an executive subcommittee of thirty members will meet monthly. The invitations which have been sent out declare the purpose of the organization to be "to further public welfare wherever technical knowledge and engineering experience are involved and to consider and act upon matters of common concern in the engineering and allied technical profession."

A Study of "Snow-Burnt" Rail

The chief of the Bureau of Safety of the Interstate Commerce Commission has just issued a report of an investigation of the derailment of a passenger train on the St. Louis-San Francisco Railroad near Keighley, Kans., on December 26, 1918, which was caused by the breaking of opposite rails which had been snow-burnt, apparently caused by an engine slipping on account of being stalled in the snow. In view of the frequency with which wheel-burnt rails are found in service, a study of the effects of such burning has been undertaken by the commission. The report summarizes the present situation with the statement that "the suggestion that wheel-burnt rails be removed from the track indiscriminately as a menace to safety would not appear justifiable in view of the inadequacy of the data upon their condition and the large number of such rails which are carrying present equipment without rupture. They are due to a condition so common that avoidance of their formation would likewise appear an impracticable demand." The report further states that "the means of distinguishing between safe and unsafe rails of this type unfortunately has not been made known" and that further investigations of the same problem are now in progress with rails involved in another derailment.

A Surprise Check on Whistling

Enginemen on the Missouri, Kansas & Texas Railway of Texas have received from their respective superintendents a circular calling attention to the importance of regular whistling at highway crossings. A check was made, for a limited time, and it was found that of 6,468 cases where an engineman passed a road crossing, the whistle was sounded 5,696 times, or 88.1 per cent. The circular says that this result is gratifying, but—

"A rating of 88 per cent is too far from being perfect to satisfy. There still exists a hazard of 12 per cent. We must reduce this hazard. We must have as nearly 100 per cent as it is humanly possible to make it. We owe to the public this solemn duty.

"It is not believed that accidents at crossings can be entirely eliminated until the elimination of the reckless automobile driver is brought about, but certainly we can do everything reasonable to eliminate such accidents by observing the rules of the railroad and the laws with respect to sounding whistle and ringing bell at all public crossings, and by taking such precautionary measures as will occur to all reasonable men.

"We solicit your earnest co-operation to the end that crossing accidents may be reduced to the lowest possible minimum. We are counting on you."

Ninth Annual Safety Congress

The program for the Steam Railroad Section's meetings during the ninth annual Safety Congress of the National Safety Council, to be held at Milwaukee, Wis., from September 27 to October 1, has been announced as follows:

September 29, 9:30 a. m.

Address by W. M. Jeffers, general manager, Union Pacific.

Safety and Time Service.

Webb C. Ball, general time inspector, Bureau of Railroad Time Service, Cleveland, Ohio.

September 30, 9:30 a. m.

Shop Accidents.

J. A. McNally, safety agent, Wabash, St. Louis, Mo.

Economic Phases of Railway Safety Work.

Samuel O. Dunn, Editor *Railway Age*.

Transportation Accidents.

C. H. Baltzell, superintendent, St. Louis-San Francisco, Fort Smith, Ark.

September 30, 2 p. m.

Round Table Discussion.

Chairman, Harry A. Adams, Bureau of Safety, Interstate Commerce Commission.

Suggested Topics.

Use of Statistics in Connection with Safety Work.

J. C. Clark, assistant to general manager in charge of safety, Oregon Short Line, Salt Lake City.

Competition in Safety Work.

R. C. Richards, president National Safety Council, Chicago & North Western, Chicago.

Duty of Safety Committee Members.

Marcus A. Dow, general safety agent, New York Central.

October 1, 9:30 a. m.

Maintenance of Way and Motor Car Accidents.

Arthur Ridgway, assistant chief engineer and safety officer, Denver & Rio Grande, Denver, Colo.

Safety Work of the Interstate Commerce Commission.

W. P. Borland, chief Bureau of Safety, Interstate Commerce Commission.

Public Safety.

C. M. Talbert, director, Department of Streets and Sewers, St. Louis, Mo.

Frisco President Enlists Aid of Employees in Personal Appeal

James M. Kurn, president of the St. Louis-San Francisco, recently addressed a letter to members of "the Frisco family" in which he said, in part:

"The war and its aftermath have torn us away from many of our old standards of habits and thought. I earnestly desire that this condition shall not operate to destroy the happy family relationship which obtains between the management and the employees of these properties. The Frisco is in a fair way to become one of the most successful railroads in the United States, and it will achieve that result if you, I, and all of our associates, each in his proper place, do our part in a hearty, co-operative spirit.

"I believe firmly in the payment of an honest day's work and expect an honest day's work for an honest day's pay. I want to and will give every employe a square deal in all our relationships, feeling that the inherent spirit of fair play with which the average American is born will influence all of you to reciprocate. It is my earnest desire that every one of the large army of employees of these companies who is industrious shall earn a comfortable living for those dependent upon him, in order to be able to provide for the bringing up of his family in the right kind of surroundings and give his children an education which is the birthright of all American citizens. This can be accomplished readily if we all pull together to make the operation of this railroad a success.

"To the supervisory officers I say, emphatically, interest yourself in your employees, lend a helping hand and a word of counsel at every opportunity, feel at all times that the men who have grown up, and are growing up on this railroad, have an interest in the property's successful operation, and that the management and owners have a large reciprocal interest in the employees. Discipline must, of course, be maintained in an organization as large as ours, but we must be absolutely just in all our relationships of every character with the rank and file of the organization. Promote at every opportunity, good feeling and mutual understanding, seek untiringly for the co-operative help of those under your charge, welcome every suggestion as to the improvement of conditions and betterment of our operating practices, make them feel by every means in your power that every one of them is an important part of the Frisco family organization. If you do this you will find your own burdens lighter, the tasks of administration easier to perform and you will have the satisfaction of knowing that your men are not only working for you but also working heartily *with* you. The respect and regard of the working organization should be highly prized by every officer.

"Let us all continue to get together on the basis of mutual understanding and confidence, and I predict for these properties a record of achievement that will eclipse anything that the Southwestern section of the United States has ever seen. And while we are achieving this we will have the hearty satisfaction of a contented family organization and the utmost harmony between the men who work and the men who direct the work."

Master Blacksmiths' Association Meets at Detroit

The twenty-sixth annual convention of the International Railway Master Blacksmiths' Association was held at the Hotel Statler, Detroit, Mich., August 17, 18 and 19, with over 100 members in attendance. After the usual opening exercises, John Carruthers, D. M. & N., president of the association, delivered his address. After setting forth the reasons which made it necessary to hold the convention at Detroit instead of Birmingham, Ala., the place selected by the association, Mr. Carruthers said, among others things: "Never before in the history of railroading have we stood so much in need of the newest and most approved methods to obtain better service and the greatest possible production. It is up to the supervisory forces to untangle the mess in which the roads have been returned to their owners."

Following a paper on Frame Repairing by H. H. Hoeffle (L. & N.), the discussion brought out a variety of methods of applying the different autogenous welding processes to frame repairs. It is evident that all of these processes are being used successfully, but with all of them the question of contraction requires careful study. It is generally at the bottom of the trouble when failures occur. The application of the electric welding process to this work is meeting with favor because of the small amount of contraction which must be allowed for, thus simplifying the preparation for the welds. In discussing the electric and gas welding processes the need for properly trained men with a knowledge of metals and the effect of heat on them as well as skill in manipulation, was dwelt on by several of the members. The effect of making welding a preferred job in the various crafts has been detrimental in this respect as the men tend to change jobs before becoming thoroughly experienced welders.

A paper on Spring Making and Repairing was read by J. W. Riley (Lehigh Valley), describing the spring plant at the Sayre, Pa., shop of that road. Here modern machinery has been introduced to eliminate the uncertainty of hand forming, which is still quite generally the practice in railroad shops. The discussion centered around the practicability of making and repairing springs in railroad shops. The concensus of opinion was in favor of this practice rather than purchasing manufactured springs and having them maintained by the manufacturer. Where adequate facilities have been provided the members who took part in the discussion generally reported not necessarily a decreased cost per ton of work done but a great decrease in the amount of repairs necessary with a decreased over-all cost of spring maintenance.

Papers were also read on the following subjects: Heat Treatment of Iron and Steel, Reclaiming Plants, Autogenous Welding, Case Hardening, and Carbon and High Speed Steels.

A report of association business transacted during the convention as well as the election of officers for the coming year will appear in next week's issue.

Traffic News

Freight Rate Hearings in Canada

Hearings were begun at Ottawa, Canada, on August 10 before the Dominion Board of Railway Commissioners in connection with the application by the Canadian railways for increases in their rates. The railways originally asked for a 30 per cent increase in freight rates but following the granting of increased wages similar to those allowed by the United States Railway Labor Board the application was amended. The carriers are now asking for a 40 per cent increase in freight rates, 20 per cent in passenger rates, with a surcharge on parlor or sleeping car fares of 50 per cent. It is estimated that the increase requested will result, if granted, in increased revenues amounting to $126,000,000.

The railways in the hearings to date have been represented by E. W. Beatty, president of the Canadian Pacific, Howard Kelly, president of the Grand Trunk, and D. B. Hanna, president of the Canadian National, and others. Shippers from various parts of the Dominion have also testified and expressed their opposition to the proposed increases.

Western Railroads Petition State Commissions for Increased Rates

Railways operating in western states in which there are state regulatory bodies, are petitioning for increased freight and passenger rates to place intrastate traffic on a parity with interstate traffic. The action taken by the Public Utilities Commission of Illinois is described elsewhere in this issue. The result of the action taken in that state, it is believed, will influence to a certain extent the action taken in other western states and may result in the reopening of the whole freight rate case before the Interstate Commerce Commission. The Iowa Railroad Commission has already taken action similar to that of the Illinois commission in its hearings on this subject at Des Moines, Ia., on August 5.

Hearings on the application of the railroads operating in the various western states have been held as follows: Colorado on August 12, Idaho on August 19, Texas on August 11, Ohio on August 16, California on August 6.

The date for the hearings in Missouri and in Washington and Nevada has not been fixed.

Illinois Railroads to Fight Low Intrastate Rates

The refusal of the Public Utilities Commission of Illinois to grant the application of railroads operating in that state for increased freight and passenger rates in order to place intrastate traffic on a parity with the rates recently authorized by the Interstate Commerce Commission for interstate traffic will, according to present indications, reopen the entire rail rate question before the Interstate Commerce Commission. The denial of the railroads' application was noted in the *Railway Age* of August 13.

In its decision the state commission made the following provisions:

It refused an increase of passenger rates from two cents to three and six-tenths cents per mile.

It refused a 40 per cent increase in freight rates, allowing, however, a 33⅓ per cent temporary increase.

It refused increased surcharges on Pullman and parlor car travel.

It refused an increase in commutation rates.

It refused a 20 per cent increase in rates for milk and cream on both passenger and freight trains.

It awarded an increase of 20 per cent on excess baggage rates, effective on September 1.

Immediately following the decision conferences were held by the railroad representatives who presented the application of the roads before the state commission and plans were formulated to carry the fight to the Interstate Commerce Commission. It was recognized, however, that a final ruling on the case cannot be expected before September 1, when the railroads pass completely out of federal control. It may be possible that the Illinois roads will compromise temporarily, pending the ultimate decision, by continuing to charge the present three cent rate after September 1 and impounding the difference between the legal state rate and the rate placed in effect during federal control.

Three state commission men representing the National Association of Railway and Utilities Commissioners sat with the Interstate Commission throughout the recent rate hearing which resulted in the $1,500,000,000 rate increase decision. These representatives recommended that the various state commissions take similar action. Walter A. Shaw, president of this association, is also a member of the Illinois commission.

An explanation which is current among western railway executives is that the Illinois commission, like other commissions in states where there are two cent fare laws, desired to keep its record clear. The belief generally is that the state body realizes the necessity for higher fares but is not willing to go on record as endeavoring to nullify a state law. The attitude assumed, therefore, is that the matter will be left to the Interstate Commerce Commission.

Coal Production

The total output of bituminous coal for the week ending August 7 is estimated at 10,334,000 net tons, in the weekly bulletin of the United States Geological Survey. This is 546,000 less tons than the production of the week before the miners' strike in Illinois. The order terminating the strike did not reach the men in time to effect a general resumption of work on Monday, August 2, and on that day the loadings were but 80 per cent of the average before the strike, but by Thursday and Friday they had passed the pre-strike average. Production during the first 187 working days of the year 1920 has been 18¼ million tons behind 1917 and more than 38 million tons behind 1918, but is 45½ million tons ahead of 1919. Anthracite loading for the week shows a decrease of 6 per cent, as compared with the corresponding week of 1919.

The mine reports for the week of July 31 picture the paralysis of operations in the Eastern Interior field caused by the strike of the daymen. Adjacent districts were benefited by the cars released because of the inactivity in the fields affected by the strike. Labor shortage and strikes caused a loss of 31.8 per cent of full time output, while the loss attributed to transportation was but 19.6 per cent.

Dumpings at Lake Erie ports increased during the second week of the operation of the amended lake order of the Interstate Commerce Commission (Service Order No. 10). The total for the week was 832,701 net tons, the largest tonnage handled in any week this season, but far short of the maximum performance in earlier years. The cumulative lake movement since the opening of navigation now stands at 7,647,000 tons, as against 13,190,000 in 1918 and 14,375,000 in 1919. Reports to the American Railroad Association of cars leaving the mines for lake destinations show a shortage of 4,546 cars at the end of the first week of the operation of the service order, and of 8,232 cars at the end of the second week. The order required a movement of 3,840 cars per day. Shipments on August 9 exceeded the daily quota.

Tidewater shipments continued in great volume during the first week of August. There was a decrease in the movement to Hampton Roads, but an increase at the four other ports. Statistics supplied by the Tidewater Bituminous Coal Statistical Bureau show that during the first week of August the movement to New England reached 256,000 net tons, while exports were 490,000 net tons. The first week of the operation of Service Order No. 11 saw a slight reduction in exports and a decided increase in the tonnage to New England. The latter was still somewhat short of the goal of 1,250,000 net tons fixed by the order. The rail movement of bituminous coal to New England increased again during the week ended August 7.

The bulletin includes the following interesting statement regarding railroad fuel stocks:

The railroads consume 28 per cent of the soft coal mined,

and normally held about the same proportion of the total quantity of coal in storage. Data on railroad fuel stocks from July 1, 1916, to January 1, 1919, are given in the following table:

STOCKS OF BITUMINOUS COAL HELD BY RAILROADS FOR FUEL, EXCLUDING COAL IN TRANSIT†

(NET TONS)

Date	Eastern District	Western District	Southern District	Total
July 1, 1916.....	6,115,000	2,246,000	824,000	9,185,000
January 1, 1917.....	3,981,749	2,234,345	427,388	6,643,482
July 1, 1917.....	3,622,000	3,068,000	486,000	7,176,000
January 1, 1918.....	4,051,193	3,960,269	878,789	8,890,251
July 1, 1918.....	3,797,000	4,849,000	1,310,000	9,956,000
January 1, 1919.....	4,736,693	7,111,268	1,796,741	13,643,702

†Complete data on railroad fuel stocks are available for January 1 of the years 1917, 1918 and 1919. For the other dates, the figures given are estimates of the total based on actual reports from roads normally carrying over 90 per cent of the stocks.

It will be seen that stocks of railroad fuel ranged during the two and a half years covered by the table from a minimum of 6,643,000 tons to a maximum of 13,644,000 tons at the beginning of 1919.

In comparison with these figures the stocks held by the railroads in the first half of 1920 were small. Data furnished the Geological Survey by the American Railroad Association indicate that 124 of the principal carriers had on hand on February 29, 1920, in cars and in stock piles, 4,275,348 net tons of coal, and that on May 31 their holdings had decreased to 3,411,348 tons. The questionnaire used in obtaining these statistics asked specifically for "tons in cars," and "tons in stock piles." Many roads furnished also the tons in chutes, and it is probable that others included the quantity in chutes under the caption "Tons in cars." As not all of the quantity in chutes was obtained, however, the figures are somewhat short of the total amount of fuel coal held by the railroads. Allowing for the small roads not reporting, the results of the inquiry may be summarized as follows:

STOCKS OF BITUMINOUS COAL HELD BY RAILROADS FOR FUEL, IN CARS AND IN STOCK PILES, FEBRUARY 29, AND JUNE 1, 1920

(IN NET TONS)

Date	Eastern District	Western District	Southern District	Total
February 29, 1920....	2,290,000	1,880,000	614,000	4,484,000
June 1, 1920.....	1,461,000	1,840,000	443,000	3,744,000

These figures, although not strictly comparable with the data for previous years, indicate clearly that railroad-fuel stocks on February 29, 1920, were far below those of the years immediately preceding. Yet from February 29 to June 1, 1920, largely as a result of the switchmen's strike, the stocks continued to decline. The decrease has been most pronounced in the Eastern district. While stocks are low in the Southern district they are still about as high as they were from January 1 to July 1, 1917. In the Western district also they are not far below the level of July, 1916, and January, 1917. Furthermore, stocks in the Western district decreased but little from March 1 to June 1, 1920.

According to a statement issued by the National Coal Association, every indication points to the effective operation of the new program recently put under way to overcome the acute soft coal shortages in the Northwest and New England as well as the rest of the country. The experience of the last two weeks shows that close co-operation of all the interests involved, under the comprehensive coal priority plan, is all that is needed to put an end to the emergency through which the nation has passed the last five months, it says.

Advices to the National Coal Association from the Ore and Coal Exchange at Cleveland, through which the movement of coal from bituminous mines to the Great Lakes for transshipment to the Northwest, under priority order No. 10 of the Interstate Commerce Commission, is being handled, indicate that there has been an appreciable increase in coal shipment during the last two weeks. Other advices show that the movement of coal to relieve the acute situation in New England has advanced to a point where ample coal is being dumped at tidewater ports and shipped all-rail, to meet New England's requirements.

Although the flow of coal from bituminous mines to the Great Lakes has been below the requirement, as laid out in the schedule evolved by the operators and railroad executives, still there has been such an improvement as to impel those handling the situation to believe that the shortage in the Northwest will be overcome before the close of Lake navigation in November. To do this, it is said, the Pennsylvania Railroad System, the Wheeling & Lake Erie and one or two others of the railroads running out of coal fields that supply the Northwest, must accelerate the movement of cars to the mines. Up to the week ending August 14 they had failed to live up to the schedule fixed. As against this, the Baltimore & Ohio, Chesapeake & Ohio, Norfolk & Western, and other roads, have given approximately the supply of cars required of them.

While shipments of 1,200,000 tons are needed each week to satisfy the lake demands up to the close of navigation, the actual dumping at lake docks had fallen considerably below. During the week ended August 7 approximately 795,000 tons were loaded at the docks, but the aggregate, it is reported, was increased during the next week. The railroads unloaded 15,903 cars during the week of August 7, as against the 24,000 which Daniel Willard, chairman of the advisory committee of the Association of Railway Executives, had assured the operators that the railroads would place at the mines each week and haul to the lake ports.

Later reports from the Coal and Ore Exchange show that the railroads for the first three days of the week ending August 14 exceeded the average daily quota of 4,000 cars at the mines serving the Great Lake movement. Reports show that these cars were loaded at the mines: Monday, 4,767; Tuesday, 3,450; Wednesday, 4,213; a total of 12,430 for the three days. Shipments from the mines on Thursday and Friday, it is reported, indicate that the full quota of 24,000 cars for the week might be reached.

The part played by the small, speculative "wagon" mine in absorbing open-top equipment, which is badly needed to overcome the shortage in cars in the great bituminous, producing fields, is pointed out by Jonas Waffle, secretary of the Indiana Coal Trade Bureau, in a statement issued by the National Coal Association. An effort to bring about drastic regulation by the Interstate Commerce Commission of the distribution of equipment to these "wildcat" mines has been launched by operators in the National Coal Association, who say that they have tied up hundreds of cars needed to relieve the acute coal shortages in the Northwest, New England and other points.

Ordinarily, as Mr. Waffle points out, the "wagon" mine, located at a considerable distance from a railroad track, sells coal only in the immediate vicinity of the mine. During coal emergencies hundreds of other "wagon" mines, owned by speculators, spring into existence, not only taking an appreciable supply of cars, which are held for days at their mines, but selling their coal in the open market at exorbitant prices. These "wagon" mine manipulators, along with the speculators in tidewater shipments, have been responsible for the high prices which have prevailed in the upset market, he said.

Finds No Dumping of Potatoes at Wilmington

As a result of a thorough investigation, the United States Department of Agriculture branded as having "no foundation whatever" reports that large quantities of potatoes were recently dumped into the Delaware river near Wilmington for the purpose of keeping up prices. Numerous inquiries as to the truth of the reports led the Bureau of Markets to send a representative to Wilmington to make a personal investigation of the matter at first hand.

No evidence whatever of dumping was found, according to his report to the department. The rumor was found to have been the result of gossip which had grown to considerable size through circulation. Railway officials, dealers, city health and market officials, and numerous persons involved in the circulation of the reports were interviewed. No one was found, however, who could substantiate the story in any particular. One railway employee through whom the story was traced, declared that during his fifteen years' experience on the railway he had never seen food dumped.

The department has on several previous occasions investigated similar reports of dumping foodstuffs. Frequently such reports were based on the dumping of small quantities of condemned produce. The department never has found a case where any quantity of merchantable produce, upon which the freight had been paid, has been dumped.

Commission and Court News

Interstate Commerce Commission

The Interstate Commerce Commission has suspended, from August 18 to December 16, the proposed rules and regulations requiring the prepayment of freight charges on traffic from points in the United States to points in Canada, as published in Item No. 290 of Supplements 13 and 14 to F. A. Leland's I. C. C. No. 1316, and in Item 290 of Supplements 13 and 14 to W. J. Kelly's I. C. C. No. 917.

The Interstate Commerce Commission on Wednesday suspended the provisions of a tariff filed by J. E. Fairbanks, which was to become effective on Thursday, August 19, putting into effect the new reconsigning rules authorized by the commission, which provide for an emergency penalty of $10 a day for detention of open-top and coal and coke cars. These provisions were suspended at the request of a special committee of the National Industrial Traffic League, which went to Washington to protest against the tariff as being more sweeping in its effect than was intended.

Increase in Hudson & Manhattan Fares Denied

The Interstate Commerce Commission has denied the application of the Hudson & Manhattan for authority to increase its passenger fares between Jersey City and Hoboken, N. J., and Hudson Terminal, New York City, to 8 cents, and to establish a similar rate between Jersey City and Hoboken and stations on its uptown line in New York, where a 10-cent fare is now charged. The commission finds the present rates of 6 and 10 cents, respectively, which were recently put into effect by the company at its suggestion, to be justified and requires cancellation of the suspended tariffs proposed by the company.

Personnel of Commissions

Walter E. Miller has resigned from the staff of the Railroad Commission of Wisconsin to engage in other business.

State Commissions

The San Francisco-Oakland Terminal applied to the railroad commission of the state of California, on August 10, for an increase in passenger fares, between San Francisco and points in Alameda, over what is known as the Key division, substantially in excess of the amount granted by the Interstate Commerce Commission.

Adjustment of the rates for transporting rice charged by the Southern Pacific, Western Pacific, Atchison Topeka & Santa Fe and nine other roads is asked by the Rice Growers' Association, Rosenberg Bros. & Co., and a number of rice merchants of the state of California in an application heard before the commission of that state on August 9. The application asked that the rice rates be placed on a par with the rate for transporting grain and beans. The request of the rice men, if granted, will mean a reduction in rice rates approximating 25 per cent.

Court News

Larceny from Freight Yard by Consignee's Agent

Under an indictment for larceny of goods from a railroad car in a freight yard, the Circuit Court of Appeals, Ninth Circuit, holds that an agent of the consignee authorized to receive and receipt for the goods is guilty of larceny thereof from an interstate carrier if he took possession of them without giving a receipt therefor, and with intent at the time he took possession to steal.—Undelman v. United States, 264 Fed. 942.

Foreign Railway News

Deficit on Swedish States Railways

LONDON.

An official statement issued by the Swedish States Railways states that the expenses in the year 1919 exceeded the receipts by 11.07 million kroner, or about $3,000,000.

The Dover-Folkestone Railway Reopened

LONDON.

The cost of restoring the line on the South Eastern & Chatham Railway, between Dover and Folkestone, along the coast which was thrown out of use in December, 1915, owing to a landslide, cost £310,000 (approximately $1,550,000), the whole of which has been paid by the British government.

Passenger Train Mileage in Great Britain

LONDON.

Sir Eric Geddes, Minister of Transport, has recently stated that the passenger train mileage run on all standard gage railways in Great Britain during the year 1919 was about 69,000,000 miles less than in the year 1913, or a reduction of 25 per cent. The statistics for 1913 do not enable any definite figure of saving to be arrived at. The statistics for the year 1919 show the average miles per engine hour of passenger trains to be approximately 10.

Austrian Railway Electrification Bill

LONDON.

The Austrian Government has recently issued a bill regarding the electrification of the Austrian state railways. The bill was introduced on July 15, in the Constituent National Assembly, and provides for the electrification of 650 kilometers (400 miles) of the western part of the railway system by the end of June, 1925, at a cost of 5,096,000,000 crowns, or approximately $1,000,000,000 at the normal rate of exchange, which is to be raised by loan. At a later date, 1,135 kilometers (700 miles) are to be electrified.

Exports of Car Wheels and Axles in June

The exports of car wheels and axles in June totaled $346,100, the detailed figures as compiled by the Division of Statistics of the Bureau of Foreign and Domestic Commerce being as follows:

CAR WHEELS AND AXLES

Countries	Dollars	Countries	Dollars
Italy	7,216	Dominican Republic	3,279
Netherlands	584	Brazil	19,273
Spain	8,758	Colombia	294
England	3,184	Ecuador	254
Bermuda	10	Peru	6,472
Canada	89,732	Venezuela	1,008
Guatemala	800	China	52,437
Honduras	135	Kwantung	46,977
Nicaragua	21	British India	2,041
Salvador	241	Dutch East Indies	42,874
Mexico	13,960	Japan	14,918
Trinidad and Tobago	327	Siam	2,000
Other British West Indies	21	Philippine Islands	12,366
Cuba	16,918		
		Total	346,100

The Swiss Coal Situation

A new six months' coal agreement has been signed by representatives of the Swiss and German Governments, Trade Commissioner H. Lawrence Groves reports from Zurich. Under its terms Switzerland will receive from 15,000 to 20,000 tons of coal and coke and 15,000 tons of briquets per month. The agreement will run until January 15, 1921.

At the same time Trade Commissioner Groves cables that in connection with approving terms of a $25,000,000 loan in the United States for the Swiss Federal Railways, the National Council has recommended to the railroad authorities that all construction work which is not of an urgent or indispensable character be suspended. What funds are avail-

able will be used to push the electrification program which is already well advanced on the Gotthard line. The difficulty of obtaining coal and its high cost make it urgent that the Swiss railways develop and utilize as rapidly as possible the water power resources of the country which are still untouched.

Exports of Cars in June

The exports of freight cars in June totaled 945, valued at $1,031,798, the detailed figures as compiled by the Division of Statistics of the Bureau of Foreign and Domestic Commerce being as follows:

EXPORTS FOR CARS FOR RAILWAYS

Countries	Passenger		Freight and other		For other railways		Parts of cars
	No.	Dollars	No.	Dollars	No.	Dollars	Dollars
Poland and Danzig	..	....	350	100,820	....	....	....
Sweden	..	....	....	....	....	....	1,995
England	..	....	....	....	....	....	2,590
British Honduras	..	....	6	3,954	....	....	....
Canada	..	....	57	7,335	22	43,800	71,160
Honduras	..	....	35	41,950	....	....	526
Salvador	2	25,851	1	7,753	....	....	95
Mexico	..	....	19	46,200	1	750	5,500
Jamaica	..	....	....	....	....	....	181
Cuba	..	....	230	366,239	50	66,538	20,011
Haiti	..	....	....	....	....	....	150
Dominican Republic	..	....	5	2,925	6	12,000	567
Argentina	..	....	....	....	....	....	3,181
Brazil	..	....	....	....	45	6,943	1,487
Chile	..	....	6	14,000	....	....	217
Colombia	..	....	....	....	....	....	3,442
Dutch Guiana	..	....	....	....	....	....	5,603
Peru	..	....	....	....	158	55,006	43,222
Venezuela	..	....	....	....	....	....	5,020
China	..	....	....	....	....	....	301,592
British India	..	....	3	21,160	....	....	44
Dutch East Indies	..	....	33	7,590	....	....	489
Japan	..	....	....	....	....	....	14,798
Philippine Islands	..	....	....	....	50	14,150	17,620
British South Africa	..	....	200	411,872	....	....	187,520
Total	2	25,851	945	1,031,798	332	199,187	687,010

England's Railway Deficit

LONDON.

The Ministry of Transport has just issued a white paper showing the results of railway operation in the year 1919-1920, together with an estimate of the receipts and expenditures for 1920-1921.

It says that the deficit on the working of the controlled railways for the financial year 1919-1920 was estimated at £45,000,000 (approximately $180,000,000) but the realized deficit is £41,349,530 (approximately $165,398,120). The receipts included an additional revenue of about £10,000,000 ($40,000,000) derived from the increase in freight rates which came into operation in January, 1920, and for which no allowance could be made in the estimate, while the expenditure also exceeded the estimate in consequence of wages concessions, a rise in the cost of material, and some overtaking of arrears of maintenance and renewals which could not then be foreseen. The excess of receipts over expenditure on actual railway working was £7,161,220 (or $28,644,880). The following is a summary of the main identifiable increases in expenditure since the question of revision of rates was referred to the Rates Advisory Committee last October.

	Per annum
Increased cost of materials	£12,000,000
Increased cost of coal	3,500,000
Increases to shopmen (11 shillings)	4,000,000
Increases to conciliation grades (5 shillings)	4,500,000
Increases to enginemen (3 shillings)	.....
Increases to conciliation grades (1 shilling)	2,000,000
Findings, National Wages Boards	7,000,000
Increases under sliding scale consequent upon rise in cost of living and other concessions, April 12 to July 1	6,800,000
Hire of rolling stock	750,000
Rates, taxes and compensation	3,200,000
Making a total of	£43,750,000

The statement further contains an estimate of the receipts and expenditure which may be expected in a full year under present conditions. The excess of receipts over expenditure for Great Britain in 1919-1920 is expected to be turned into a loss of £4,500,000 ($18,000,000) and the net liability falling on the exchequer for the railways of the United Kingdom is estimated at £54,500,000 ($218,000,000) instead of £41,349,530 ($165,398,120), which was the liability in 1920. The liability in respect of the Irish railways is estimated at £2,200,000 ($8,800,000).

The following table gives the main items in the full year's estimate in comparison with the actual results:

	Actual results year ended March 31, 1920	Estimate for a full year under present conditions
Great Britain:		
Guarantee of 1918 net receipts	£45,659,000	£45,600,000
Interest on new capital expenditure	1,016,000	1,200,000
Total Government guarantee	£46,675,000	£46,800,000
Railway receipts:		
Passenger train traffic	£102,405,875	£105,000,000
Freight train traffic	91,964,210	134,000,000
	£194,370,085	£239,000,000
Less expenses of collection and delivery	10,817,587	13,000,000
	£183,552,498	£226,000,000
Miscellaneous	2,016,015	2,000,000
Total railway receipts	£185,568,513	£228,000,000
Railway expenditure	177,980,766	232,500,000
Net receipts—railway working	£7,585,747 Loss	£4,500,000
Other business—loss	426,527	1,000,000
Total net receipts	£7,161,220 Loss	£5,500,000

The estimated loss of revenue from passenger train traffic during the railway strike in September 1919, is put down at £1,500,000 and freight train traffic at £1,000,000.

With reference to the present inquiry of the Rates Advisory Committee it is pointed out that it is undesirable to impose increases of rates at short intervals to meet the successive alterations in the price of materials and in rates of wages, and it is therefore necessary to impose increases of rates at a higher level than the present rate of expenditure will justify in order that the loss already sustained in the current year may be recovered. The government realizes that there is some risk attaching to any substantial increase in rates that it will lead to such displacement or cessation of traffic as will result in loss instead of gain. In announcing its acceptance of the findings of the National Wages Board the government stated that, while agreeing with the board's view that the wages settlement should not be disturbed until stable trade conditions had returned, in the opinion of the cabinet this must be accepted with the qualification that should forthcoming increases in railway rates and charges, consequent in large measure upon the increased cost of labor, not produce additional revenue, it would be impossible that the present level of wages could be maintained.

English Railway Statistics

LONDON.

The Ministry of Transport has recently issued its statistics for the four weeks ended May 23, which shows that the total tonnage carried by the railways in Great Britain for that period was 27,468,099 tons, or an increase of 10 30 per cent on the previous four weeks. The average length of haul was 57.67 miles. The average train load increased from 132.69 tons for the four weeks ended April 25, to 135.35 tons for the four weeks ended May 23. The Great Central Railway has the highest average, 169.66 tons; the Great Northern, 163.20 tons; the North Eastern, 158.44 tons; the Great Western, 151.43; the Midland, 147.16 tons, and the London & North Western, 146.53. The average carload for all railways in Great Britain was 5.49 tons, and the train-miles per engine hour was 3.22, and the ton-miles per engine hour, 436. The freight train receipts per ton-mile were 1.559 pence as against 1.715 pence for the previous four weeks.

Increase in Great Britain's Number of Passengers

LONDON.

Replying to a question asked in Parliament, the Minister of Transport has issued an official report giving the number of passengers carried on the railway systems of Great Britain for the years 1913 and 1919. They are as follows:

	1913	1919	Increase
6 months ended June 30	384,494,723	471,124,186	86,629,463 or 22.53 %
6 months ended December 31	433,487,116	503,135,780	69,648,664 or 16.07 %
	1913	1920	Increase
3 months ended March 31	184,625,201	242,662,814	58,037,613 or 31.44 %

The passengers carried on these railways represent approximately 73 per cent of the total for all standard gage railways in Great Britain, and the number of season ticket holders in 1919 snows an increase of over 54 per cent as compared with 1913.

Equipment and Supplies

Locomotives

THE ST. LOUIS-SAN FRANCISCO is inquiring for 10 Consolidation type locomotives.

THE CENTRAL ANDREITA (Cuba) will have one locomotive built at the Baldwin Locomotive Works.

THE CIEGO DE AVILA (Cuba) will have one locomotive built at the Baldwin Locomotive Works.

THE CENTRAL ESPERANZA (Cuba) will have one locomotive built at the Baldwin Locomotive Works.

THE CENTRAL NAJASA (Cuba) will have one locomotive built at the Baldwin Locomotive Works.

THE CENTRAL SANTA AMELIA (Cuba) will have one locomotive built at the Baldwin Locomotive Works.

THE SEABOARD AIR LINE is inquiring for some light Mikado type locomotives.

THE TENNESSEE CENTRAL is inquiring for some 2-8-2 type locomotives.

THE CARNEGIE STEEL COMPANY, Pittsburgh, Pa., has ordered 2 locomotives from the Baldwin Locomotive Works.

THE ATLANTIC COAST LINE is inquiring for 2 6-wheel switching locomotives.

THE BOSTON & MAINE is inquiring for 26 8-wheel switching locomotives, 5 Mallet type and 9 Santa Fe type locomotives.

THE PELICAN BAY LUMBER COMPANY, Klamath Falls, Ore., has ordered one logging locomotive from the American Locomotive Company.

THE PENNSYLVANIA EQUIPMENT COMPANY, 1420 Chestnut street, Philadelphia, Pa., is in the market for a 36-in. gage American Mogul or 10-wheel type locomotive, not over 25-tons in working order, 150 lb. steam pressure and wheel base to take 30 to 35 degree curves.

Freight Cars

A. MCNEIL & SONS COMPANY, Grand Central Palace, New York, is inquiring for 200 hopper-bottom gondola cars.

THE STUDEBAKER CORPORATION, South Bend, Ind., is inquiring for from 100 to 200 flat cars of 40 tons' capacity.

THE BROWN HOISTING MACHINERY COMPANY, Cleveland, Ohio, is inquiring for 50 trucks.

THE BALTIMORE & OHIO has renewed its inquiry for 500 steel underframe refrigerator car bodies of 40 tons' capacity.

THE TRINIDAD GOVERNMENT LINES has ordered 30 cane cars of 10 tons' capacity from the Magor Car Company.

THE NASH MOTORS COMPANY, Kenosha, Wis., is inquiring for 50 automobile cars of 40 tons' capacity.

THE SEABOARD AIR LINE, reported in the *Railway Age* of May 28 as inquiring for 100 phosphate cars, has changed this inquiry to 300 cars.

THE PENNSYLVANIA EQUIPMENT COMPANY, 1420 Chestnut street, Philadelphia, Pa., is in the market for a second-hand standard gage caboose car.

THE AETNA EXPLOSIVE COMPANY, 165 Broadway, New York, has ordered from the General American Tank Car Corporation five tank cars of 6,000-gal. capacity, to carry muriatic acid.

THE ELECTRO BLEACHING GAS COMPANY, 18 East Forty-first street, New York, has ordered from the General American Tank Car Corporation five tank cars to carry liquid chlorine.

Supply Trade News

H. H. Knapp has been appointed treasurer of the **U. S. Light & Heat Corporation**, Niagara Falls, N. Y.

Walter E. Miller will engage in private practice as a civil engineer, giving attention to investigations and studies of steam and electric railways and public utility problems, especially the valuation of such properties, ratemaking therefor, reports of efficiency of operation, designing, estimating and supervising construction of new properties and improvements of existing plants. Temporarily his headquarters will be in the Pioneer Block, Madison, Wis.

A company is being organized to construct freight car repair plants at St. Paul, Minn., and Minneapolis which will have capacities to repair 6,000 cars annually and can later be enlarged to handle 15,000 cars per year. The company is now in the market for machine tools and appliances suitable for equipping a modern plant of this type. **Claude H. Siems, Alan G. Siems** and **C. C. Semple** are the promoters and the company's headquarters are in the Guardian Life building, St. Paul, Minn.

Harvey W. Cutshall, supervisor of gas engines and special equipment on the St. Louis-San Francisco, has been appointed general manager of **Mudge & Co.,** in general charge engineering and manufacturing, effective July 1. Mr. Cutshall was born on January 23, 1876, at Maddensville, Pa. From 1893 to 1896, he was employed on the Chicago, Rock Island & Pacific as assistant agent and operator on the West Iowa division. Later he was engaged in the electrical contracting business and for a time was with the McCormick Harvesting Machine Company. In 1904 he was appointed superintendent of telegraph and signal engineer of the El Paso & Southwestern, which position he held until 1911. Two years later he was appointed manager of the service department of the Hudson Automobile Agency at Springfield, Mo. He was appointed to the position he held at the time of his recent appointment in September, 1916.

H. W. Cutshall

The Uehling Instrument Company, 71 Broadway, New York, manufacturers of fuel economy equipment, announces that it is now being represented in the New England states by the **Smith Engineering & Supply Company,** 89 State street, Boston, Mass., manufacturers' agents and engineers, specializing in power plant equipment. **S. W. Smith,** president of the latter company, was until very recently associated with the Uehling Instrument Company, with headquarters in its New York office.

Trade Publications

PUBLIC RELATIONS.—The Western Electric Company has published a booklet containing reprints of ten advertisements in the interests of the electrical industry and public utilities with the object of promoting better public relations. The issue is one of a series that has been incorporated in booklet form.

TWIST DRILLS AND REAMERS.—The Whitman & Barnes Manufacturing Company, Akron, Ohio, which is now manufacturing

twist drills and reamers exclusively, has revised its catalogue to cover only these products. It contains 120 pages, giving prices and all necessary data. In the back of the book are tables of tap drill sizes, decimal equivalents of regular sizes, cutting feeds and speeds, etc.

CHAIN BLOCKS.—The Machine Shop issue of Hoisting Hints, published by the Yale & Towne Manufacturing Company, Stamford, Conn., contains a number of illustrations of Yale spur gear chain blocks handling heavy lifting operations in machine shops of many industries. These hoists are made in 17 sizes, with capacities ranging from ¼ to 40 tons, the booklet containing prices and specifications.

PNEUMATIC TOOLS AND ELECTRIC DRILLS.—The Independent Pneumatic Tool Company, Chicago, has revised its catalogue of Thor tools. The new book contains 78 pages, giving descriptions, illustrations, dimensions and sizes, and covers the new additions to the line, consisting of motor driven air hoists, pneumatic sand rammers, a universal vise for pneumatic drills, hose coupling, power screwdriver, hose clamp and hose mender.

BOILERMAKERS' TOOLS.—The line of railway and boilermakers' supplies manufactured by the Lovejoy Tool Company, Chicago, is listed and briefly described in catalogue No. 10, containing 32 pages, illustrated. The line includes ratchets, drilling posts, punches and dies, expanders, flue cutters, pneumatic hammers, rivet forges and ball-bearing jacks for railroad use.

RADIAGRAPH CUTTING TORCH.—The Davis-Bournonville Company, Jersey City, N. J., has issued a bulletin describing the No. 1A Radiagraph. This is a portable, mechanically operated cutting torch for cutting and beveling plate and structural steel. It cuts to straight and circular lines, and when the torch is set at an angel, bevels the edges of boiler plates. The bulletin shows some characteristic cutting done with it.

INSTRUCTION BOOK FOR WELDERS.—A new edition of the Eveready instruction book distributed by the Oxweld Acetylene Company, Chicago, is a comprehensive treatise on everyday oxy-acetylene welding and cutting. It is a compact reference book, containing 55 pages, 5 in. by 8 in., illustrated. Practical information on modern practices in welding and cutting is presented in a manner so that it can be easily grasped by the beginner, at the same time being valuable to the experienced welder and cutter.

TWIN CITY ENGINES.—The Minneapolis Steel & Machinery Co., Minneapolis, Minn., has recently issued a 48-page illustrated bulletin which is devoted to the line of internal combustion, heavy duty motors, manufactured by this company. The pages contain a full description of the methods of construction and utilization of these motors while the illustrations include photographs, drawings and power curves of the motor and of actual installations where the motors are driving hoists, pumping units, ditch diggers and drag-line excavators, etc.

DIE HEADS.—The Eastern Machine Screw Corporation, New Haven, Conn., has compiled a 96-page catalogue covering H & G automatic self-opening die heads and collapsible taps, and, in addition, includes much valuable data relating to thread cutting that should be useful to men working out threading problems. The descriptions are concise and are well illustrated. They cover four types of die heads, a new H & G collapsible tap and chasers for the die heads. Detailed instructions for opening the heads, installing chasers, closing the heads and adjusting the pitch diameter, with information on cutting speeds and lubricants also included.

THERMIT PIPE WELDING.—The Metal & Thermit Corporation, New York, has issued the third edition of its thermit pipe-welding pamphlet, No. 16. In the new edition the subject of thermit pipe welding has been revised and brought up to date. The making of thermit pipe welds is described in detail. The pamphlet also contains reports on successful tensile strength and vibration tests of thermit welds conducted by Stevens Institute, and a chart showing the comparatively low cost of a thermit welded pipe as compared with the cost of installing compression flanges with bolts and gaskets. The new edition also contains an account of a 10-year pipe test during which 700 ft. of 4-in. thermit welded pipe was constantly subjected to a hydraulic pressure of 1,500 lb. per sq. in., without requiring any attention.

Railway Construction

THE INTERSTATE COMMERCE COMMISSION has approved loans to various railroads to assist them in financing new improvements. See items in *Railway Financial News.*

ATCHISON, TOPEKA & SANTA FE.—A contract has been given to The Roberts & Schaefer Company, Chicago, for building a 400-ton, four-track, reinforced concrete locomotive coaling plant, complete with a Rands gravity sands plant, at Dodge City, Kan.

BIG SOUTH FORK.—This company has applied to the Interstate Commerce Commission for a certificate authorizing it to build a line in Scott County, Tenn., for a distance of 14 miles, from a point on the Oneida & Western at or near where it crosses the Big South Fork of the Cumberland river.

CHICAGO, BURLINGTON & QUINCY.—A contract has been let to G. A. Johnson & Son, Chicago, to build a 16-stall roundhouse, a coal pocket, a clinker pit, a washout sump, and wash and locker rooms at Galesburg, Ill. Contracts for the building of passenger depots at Mound City, Mo., and Kirkesville, Mo., have been let to T. S. Leake & Co., Chicago.

CHICAGO, MILWAUKEE & ST. PAUL.—Contracts have been let to the Ogle Construction Company, Chicago, to build a 160-ton coaling station at Dubuque, Ia.; a 200-ton coaling station at Corliss, Wis., and a 200-ton coaling station at Davis Junction, Ill.

CHICAGO & NORTH WESTERN.—A contract has been let to the Ogle Construction Company, Chicago, to build a 300-ton coaling station at Carroll, Iowa.

COLORADO & SOUTHERN.—Contracts have been let to the Ogle Construction Company, Chicago, to build a 150-ton coaling station at Walsenburg, Colo., and a 50-ton coaling station at Boulder Junction, Colo.

FORT WORTH & DENVER CITY.—A contract has been given to the Ogle Construction Company, Chicago, to build a 150-ton coaling station at Delhart, Tex.

MISSOURI, KANSAS & TEXAS.—Land has been bought and plans are being made to build new locomotive facilities at Oklahoma City, Okla., for which the following contracts have been let: For grading, bridges and culverts, to List & Gifford Construction Company, Kansas City, Mo.; for a 300-ton reinforced concrete coaling plant, to Roberts & Shaefer Company, Chicago (mentioned in the *Railway Age* of August 13), and for steel combination water tank and softener, capacity 100,000-gal. of softened water, to Graver Corporation (William Graver Tank Works), Chicago. The buildings will include a 100 ft. turntable, 8-stall roundhouse, machine shop and power plant, toilets and lavatory, storehouse, boiler washing plant, etc. Contracts for the buildings have not yet been let.

NEW JERSEY, INDIANA & ILLINOIS.—This road is constructing track and yard facilities in the southern part of South Bend, Ind., which will serve the Studebaker Corporation, the Oliver Chilled Plow Works, and other industries in the vicinity. The Dominion Construction Company, Toronto, Canada, is the contractor.

UTAH TERMINAL.—This company has applied to the Interstate Commerce Commission for authority to build an extension of 3.63 miles in Carbon County, Utah.

ON STATE CONTROL.—Those who advocate state ownership supported by general taxation will use this rate increase as an argument to prove that private ownership is bad. But they will not make much headway. The fact is that this rate increase of a billion and a half was made necessary by the waste and ruin wrought by state control. And the American way of doing business is to leave it to private interests, permitting them to charge a fair price for their services rather than muddle the whole matter by government interference, and finally taxing the public to make good enormous deficits created by poor management.—Leslie's.

Railway Financial News

The Loan Fund

The Interstate Commerce Commission has now certified loans from the $300,000,000 fund to 17 roads for a total of $51,669,655.

ANN ARBOR.—The Interstate Commerce Commission has approved a loan of $35,000 to this company to enable it to provide itself with 3 new switching locomotives at an estimated cost of $116,775. Of the total cost of the locomotives, 50 per cent is to be financed by the issue of equipment notes to or through the builders, approximately 20 per cent is to be paid in cash by the carrier and approximately 30 per cent is represented by the government loan.

ASHLAND COAL & IRON RAILWAY.—The Interstate Commerce Commission has issued an order authorizing this company to issue its promissory note, or notes, to the amount of $150,000, for the purpose of refunding notes maturing in August and November.

ARKANSAS & LOUISIANA MISSOURI.—This company has applied to the Interstate Commerce Commission for authority to issue equipment trust notes to the amount of $220,000 to be used in the purchase of four 10-wheel freight locomotives, 1 steam wrecker, 1 Jordan ditcher, 1 steam bucket crane and 2 steel passenger coaches, at a cost of $287,703, of which $67,703 is to be paid in cash.

CHICAGO GREAT WESTERN.—The Interstate Commerce Commission has approved a loan of $997,830 to aid this carrier in purchasing 10 heavy freight locomotives at a total estimated cost of $552,000, and in reconstructing 697 box cars, 200 steel hopper cars and 75 refrigerator cars at an estimated total cost of $1,142,660, and also in making additions and betterments to roadway and structures which will expedite the movement of freight train cars, at an estimated total cost of $301,000. The contribution of the carrier to meet the loan of the government is $997,830. The item of $301,000 is to cover the installation of additional yard tracks at or near Oelwein, Ia., at a cost of $120,000, the installation of additional shop and roundhouse equipment at Oelwein and larger turntables at Chicago and Des Moines at a cost of $181,000.

CHICAGO, MILWAUKEE & ST. PAUL.—This company has filed its claim with the Railroad Administration for causes arising from federal control of its property. It is understood that the amount which the company considers is due it from the government aggregates about $25,000,000, of which approximately $16,000,000 is for equipment.

CHICAGO & WESTERN INDIANA.—The commission has approved the making of a loan of $8,000,000 to aid this carrier in meeting its collateral trust gold notes due, by extension, September 1, 1920. The carrier itself is required to finance, on a basis satisfactory to the commission, the remaining $8,000,000 of its maturing obligations. The carrier is a terminal railroad serving 12 trunk lines at Chicago. It is the owner of valuable terminal facilities and equipment.

Holders of the $16,000,000 notes of the Chicago & Western Indiana maturing September 1, 1920, have been asked to extend half of the amount of their holdings in new 15-year 7½ per cent collateral trust bonds, the other half to be paid in cash on maturity date. The offer is made in a letter to noteholders from H. G. Hetzler, president of the company, who states that the new issue of bonds will be repurchased by sinking fund operations prior to its maturity. The new bonds will be secured by 140 per cent of their principal amount in the company's first and refunding mortgage bonds. President Hetzler adds that in his judgment the value of the property mortgaged to secure such first and refunding bonds is materially in excess of the company's total debt. Payment of sums sufficient to take care of interest on the company's debt and the sinking fund necessary to retire the new issue within fifteen years are assured under long term leases to the proprietary companies. President Hetzler's letter states that in order to make the loan of half the amount of the maturing debt from the government loan fund available it will be necessary to secure the assent to the plan of holders of not less than 86 per cent of the notes.

Deposits of notes with the Bankers' Trust Company under the plan are requested.

CRIPPLE CREEK CENTRAL.—This company has declared a distribution of capital of one per cent on the outstanding $3,000,000 4 per cent non-cumulative preferred stock. This is the sixth payment from capital on the preferred and reduces the par value of preferred shares to $94.

DELAWARE & HUDSON.—The Interstate Commerce Commission has approved a loan of $1,125,000 to this company to aid it in making additions and betterments to promote the movement of freight train cars. The road is required to itself finance for the same purpose an amount equal to the loan of the government. The total of $2,250,000, including the company's contribution, will be used to finance the elimination of the Whitehall tunnel at a cost of $500,000 and a new yard at Glenville, at a cost of $1,250,000 and one at Port Henry, at a cost of $500,000.

NEW YORK CENTRAL.—This company has sold to a syndicate of bankers, headed by J. P. Morgan & Co., an issue of $25,000,000 of 10 year 7 per cent bonds, which will be offered for public subscription by that syndicate within a few days. The issue will be offered, it is understood, at par and interest, subject to formal approval by the Interstate Commerce Commission. The New York Central has to meet on September 1 a maturity of $15,000,000 of one year 6 per cent collateral trust gold notes, dated September 15, 1919, and floated to retire an issue of two year 5 per cent collateral notes. Back of those notes, which fall due in September, was deposited $20,000,000 of the New York Central & Hudson River refunding 4½ per cent bonds and $3,750,000 of the Reading Company's first preferred stock.

NORFOLK & PORTSMOUTH BELT LINE.—The Interstate Commerce Commission has authorized the issue of a promissory note for $150,000 for one year at 6 per cent, payable to the Norfolk National Bank of Norfolk, Va.

NORTHERN PACIFIC.—The claim filed by this company against the Railroad Administration for amounts said to be due the company for causes arising from federal control, as mentioned in last week's issue, is for $25,796,397, of which $8,597,394 is for undermaintenance of way and structures, $7,741,379 for undermaintenance of equipment and the balance is for miscellaneous items, including balance of compensation.

ST. LOUIS SOUTHWESTERN.—The Interstate Commerce Commission has approved for two years from March 1 a lease to this company of the Valley Terminal Company of East St. Louis, most of the stock of which has been owned by the St. Louis Southwestern.

WESTERN MARYLAND.—This company has applied to the Interstate Commerce Commission for a loan to assist it in financing additional passing sidings at a cost of $27,800, an engine terminal and yards at Bowest, Pa., at a cost of $100,000, dredging at Port Covington, Baltimore, at a cost of $95,000 and an enlargement and extension of the coal pier at Baltimore at a cost of $400,000.

The Dominion Board of Railway Commissioners of Canada has granted the application of the American Railway Association for an increase in through rates, insofar as Canada is concerned, to correspond with increases recently granted by the Interstate Commerce Commission. The order, issued on August 14, says: "It is ordered that the proportions of through rates, fares and charges between the United States and Canada, fares in both directions, in effect at the date of this order, accruing within Canada, may, by general or blanket supplement to existing tariffs, be increased to the extent that the through rates, fares and charges shall conform to the increases granted by the order of the Interstate Commerce Commission; except on coal and coke, increases which are reserved pending the judgment of the board in the application of Canadian carriers for increased rates within Canada."

Railway Officers

Financial, Legal and Accounting

O. P. Barry, ticket auditor of the Chicago, Milwaukee & St. Paul, with office at Chicago, has been appointed auditor of expenditures, with the same headquarters, effective August 1, succeeding W. C. Dorsey, who has resigned.

Operating

George B. Butts has been appointed superintendent and car accountant of the Abilene & Southern, with headquarters at Abilene, Tex., effective August 1.

A. C. Peterson has been appointed assistant superintendent of the Superior division of the Chicago, Milwaukee & St. Paul, with headquarters at Green Bay, Wis., effective August 1.

F. E. Devlin, trainmaster on the Chicago, Milwaukee & St. Paul, with headquarters at Green Bay, Wis., has been promoted to superintendent of the Racine and Southwestern division, with headquarters at Beloit, Wis., effective August 15, succeeding E. W. Morrison, who has been assigned to other duties.

F. M. Clark, superintendent of the Danbury division of the New York, New Haven & Hartford, with headquarters at Danbury, Conn., has been transferred to the New York division with headquarters at Harlem River, N. Y., succeeding C. H. Motsett, resigned and **J. W. Cuineen,** assistant superintendent of the Central New England, with headquarters at Poughkeepsie, N. Y., has been appointed Mr. Clark's successor, effective August 15.

J. P. Houston, superintendent of the Eastern division of the Minneapolis & St. Louis, with headquarters at Oskaloosa, Iowa, has been promoted to assistant to the general manager, with headquarters at Minneapolis, Minn., effective August 15. **F. O. Coleman,** assistant superintendent of the Eastern division, with headquarters at Oskaloosa, Iowa, has been promoted to succeed Mr. Houston; **C. A. Hodgman,** superintendent of transportation with headquarters at Minneapolis, Minn., succeeds Mr. Coleman and the position of superintendent of transportation has been abolished. **E. J. Sturdevant** has been appointed superintendent of car service, with headquarters at Minneapolis, Minn.

Traffic

N. C. Osborne has been appointed general eastern freight agent of the Seaboard Air Line, with headquarters at New York, succeeding H. M. Runyon, resigned, effective August 16.

E. F. Flinn, general freight agent of the Grand Trunk, with headquarters at Chicago, will act as general western freight agent of the Canadian National; **J. D. McDonald,** general passenger agent, with the same headquarters, will also act as general western passenger agent of the Canadian National. The following general agents of the Grand Trunk will also represent the Canadian National in the same capacity: **C. G. Orttenburger,** at Chicago; **J. H. Burgis, H. H. Hamill,** at Detroit, Mich.; **W. J. Gilkerson,** and **George H. Brown,** at Minneapolis, Minn.; **H. W. Ploss,** at Milwaukee, Wis.; **A. Z. Mullins,** at Grand Rapids, Mich., and **W. H. Burke,** at St. Louis, Mo. **W. H. Spicer,** district freight agent in charge of the Michigan territory of the Grand Trunk, will act as general agent of the Canadian National, succeeding F. A. Shaw, transferred. **C. E. Wagner** and **A. S. Munro,** commercial agents of the Grand Trunk at Saginaw, Mich., London, Ont., respectively, have been appointed commercial agents of the Canadian National also, and **V. G. Snell,** division freight agent at Stratford, Ont., will be division freight agent of the Canadian National.

Albert V. Kipp, whose appointment as general freight and passenger agent of the Salt Lake & Utah, with headquarters at Salt Lake City, Utah, was announced in the *Railway Age* of August 6 (page 269), was born on April 12, 1880, at Kewaunee, Wis. Mr. Kipp entered railway service in June, 1901, as a telegraph operator for the Chicago, Rock Island & Pacific. In September, 1902, he became a telegraph operator for the Union Pacific, which position he held until 1908, when he entered the traffic department of this road. During the next seven years he was traveling freight agent, with headquarters at Denver, Colo. From 1915 to 1918 he served as contracting freight agent with the same headquarters. During the war he was in the traffic department of the United States Food Administration, as district representative, with headquarters at Denver. Upon the conclusion of these duties he re-entered the service of the Union Pacific as traffic agent, at Denver. In March, 1920, he was appointed general agent, with headquarters at Butte, Mont., which position he occupied at the time of his recent appointment.

A. V. Kipp

Engineering, Maintenance of Way and Signaling

J. J. Ochs, assistant in the chief engineer's office of the Chicago & Alton, has been appointed office engineer, with headquarters at Chicago, effective July 1, succeeding J. E. Schwab, who has been appointed city engineer of Alton, Ill.

Obituary

N. F. Thompson, district engineer of the western district of the New York Central, with headquarters at Buffalo, N. Y., died July 26 at Roswell, New Mexico. His death was due to chronic throat trouble. Mr. Thompson was born at Lansingburgh, (now Troy), N. Y., on October 16, 1884. He graduated from Troy Academy and then entered Rensselaer Polytechnic University, graduating as civil engineer in 1907. He began railroad work shortly afterwards as draftsman in the engineering department of the New York Central. He was soon promoted to assistant engineer of grade crossing, and in 1912 was appointed engineer of grade crossings. His appointment as district engineer of the middle district, with headquarters at Albany, N. Y., occurred in March, 1917. He was transferred to the western district in January, 1918.

Arthur Patriarche, formerly vice-president of the Pere Marquette, died at Detroit, Mich., on August 16. Mr. Patriarche was born on June 13, 1849, at the Isle of Jersey. His first railroad work began in September, 1872. From 1875 until 1882 he served as agent of the Flint & Pere Marquette at Bay City, Mich. He then became general western agent at Milwaukee, Wis., and in September, 1883, was appointed assistant general freight agent. He was promoted to general freight agent in 1886 and retained that position until 1891, when he was appointed traffic manager. In 1900 he took over the same duties with the Pere Marquette, successor to the Flint & Pere Marquette, serving that road as traffic manager until 1904, when he was appointed general traffic manager. For a short time afterwards he served as freight traffic manager, but in January, 1906, he resumed the duties of general traffic manager and retained them until 1908, when he was appointed assistant to the president. A short time later he was elected vice-president and served in that capacity until 1912.